

SIEMENS

SIMATIC RTLS

System Manual

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.

⚠ WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.

⚠ CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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Note the following:

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Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

Purpose of this documentation

This System Manual support you when installing and connecting the anchors, gateways and transponders.

The configuration and the integration of the devices in a network are not described in this System Manual.

It is intended for @@fehlt noch@@.

Additional information

You will find further information on the anchors, gateways and transponders listed in this documentation in the associated manuals.

Additional information (<https://support.industry.siemens.com/cs/us/en/ps/25277>)

Trademarks

SIMATIC RTLS ® is a registered trademark of the Siemens AG.

Industry Online Support

In addition to the product documentation, the comprehensive online information platform of Siemens Industry Online Support offers support at the following Internet address: (<https://support.industry.siemens.com/cs/us/en/>)

Apart from news, there you will also find:

- Project information: Manuals, FAQs, downloads, application examples etc.
- Contacts, Technical Forum
- The option submitting a support query: (<https://support.industry.siemens.com/My/us/en/>)
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Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit: (<https://new.siemens.com/global/en/company/topic-areas/future-of-manufacturing/industrial-security.html>)

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customers' exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under: (<https://support.industry.siemens.com/cs/ww/en/ps/15247/pm>)

Recycling and disposal



The products are low in harmful substances, can be recycled and meet the requirements of the Directive 2012/19/EU for disposal of waste electrical and electronic equipment (WEEE).

Do not dispose of the products at public disposal sites.

For environmentally compliant recycling and disposal of your electronic waste, please contact a company certified for the disposal of electronic waste or your Siemens representative.

Note the different national regulations.

Safety notices

General

Note the following security recommendations to prevent unauthorized access:

- You should make regular checks to ensure that the devices meet these recommendations and/or other security guidelines.
- Evaluate your plant as a whole in terms of security. Use a cell protection concept with suitable products (<https://www.industry.siemens.com/topics/global/en/industrial-security/pages/default.aspx>).
- When the internal and external network are disconnected, an attacker cannot access internal data from the outside. Therefore operate the devices only within a protected network area.
- For communication via non-secure networks use additional devices with VPN functionality to encrypt and authenticate the communication.
- Terminate the management connections properly (SIMATIC RTLS Locating Manager and its clients).
- Keep the firmware up to date. Check regularly for security updates for the device. You can find information on this at the Industrial Security (<https://www.industry.siemens.com/topics/global/en/industrial-security/pages/default.aspx>) website.
- Inform yourself regularly about security recommendations published by Siemens ProductCERT (<https://www.siemens.com/cert/en/cert-security-advisories.htm>).
- Only activate protocols that you require to use the devices.
- Restrict access to management of the devices by assigning "Users" and "User groups" as needed.
- Use a central logging server to log changes and access operations. Operate your logging server within the protected network area and check the logging information regularly.

Password security

Note the following security recommendations for handling passwords:

NOTICE
Prior to the first commissioning
Connect to the devices and change the standard passwords for the "Users" and "User groups" before you operate the device.

- Define rules for the assignment of passwords.
- Regularly change your passwords to increase security.

- Use passwords with a high password strength.
- Make sure that all passwords are protected and inaccessible to unauthorized persons.
- Do not use the same password for different users and systems.

Physical access

Note the following security recommendations for physical access to the devices:

- Restrict physical access to the devices to qualified personnel.
- Lock unused physical interfaces on the devices. Unused interfaces can be used to gain access to the plant without permission.

System overview

3.1 System overview

SIMATIC RTLS - Localization network for real-time communication

As leading global supplier of real-time location systems, Siemens offers a uniquely integrated and scalable portfolio with its SIMATIC RTLS product line. SIMATIC RTLS is the localization system for flexible and economical localization solutions. You can use SIMATIC RTLS to navigate material flows, control mobile robots, monitor the use of components and completely document the assembly of the final product.

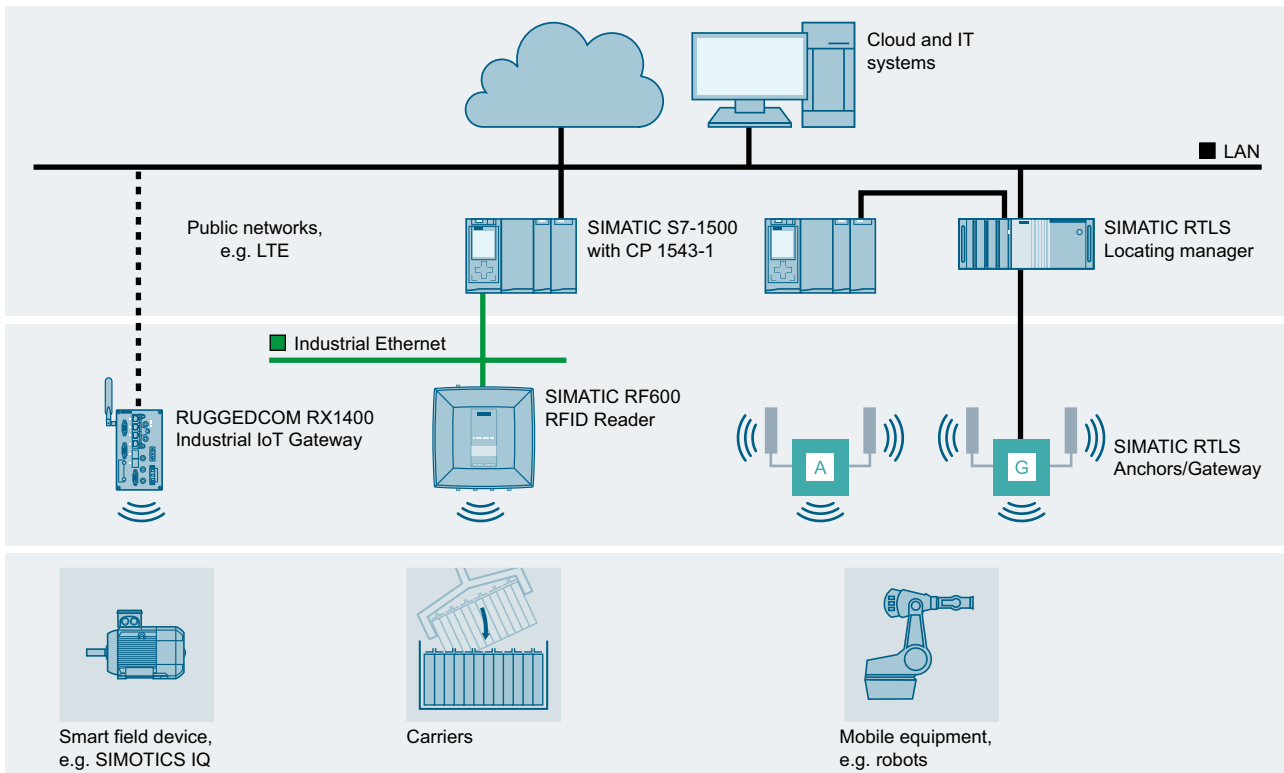
This makes SIMATIC RTLS a crucial component of the digital infrastructure in the plant of the future. SIMATIC RTLS is used to implement localization tasks that require a high level of accuracy in large indoor or outdoor spaces. The system can be used for locating and recording large populations of relevant objects. Each object receives a unique identification in the process by means of a transponder that is attached to products, containers, transport units or persons. You can also display freely definable information on the transponder. Various active transponders are available for industrial applications. They have been designed for a long service life and are operated by means of replaceable batteries, rechargeable batteries or an external power supply.

Complete solutions of the SIMATIC RTLS localization platform consist of the following three elements:

- Active transponders that are attached to the objects which are going to be located
- Locating infrastructure consisting of gateways and anchors which receive transponder signals and transmit them to the localization server
- SIMATIC Locating Manager localization server which calculates the real-time position of the individual transponders and forwards this information to higher-level systems

The size of such a system solution is scalable at any time. Devices that are easy to install combined with a license-based localization server allow for the expansion of an existing localization infrastructure by adding additional applications or expanding the area that is going to be localized. An ISO standard interface, among other things, is available for integration into the IT system landscape. SIMATIC RTLS includes different product families that are optimized for various applications. The main difference is the radio process that is used for communication and locating; it is customized for each application. The products in a product group are compatible with each other.

3.1 System overview

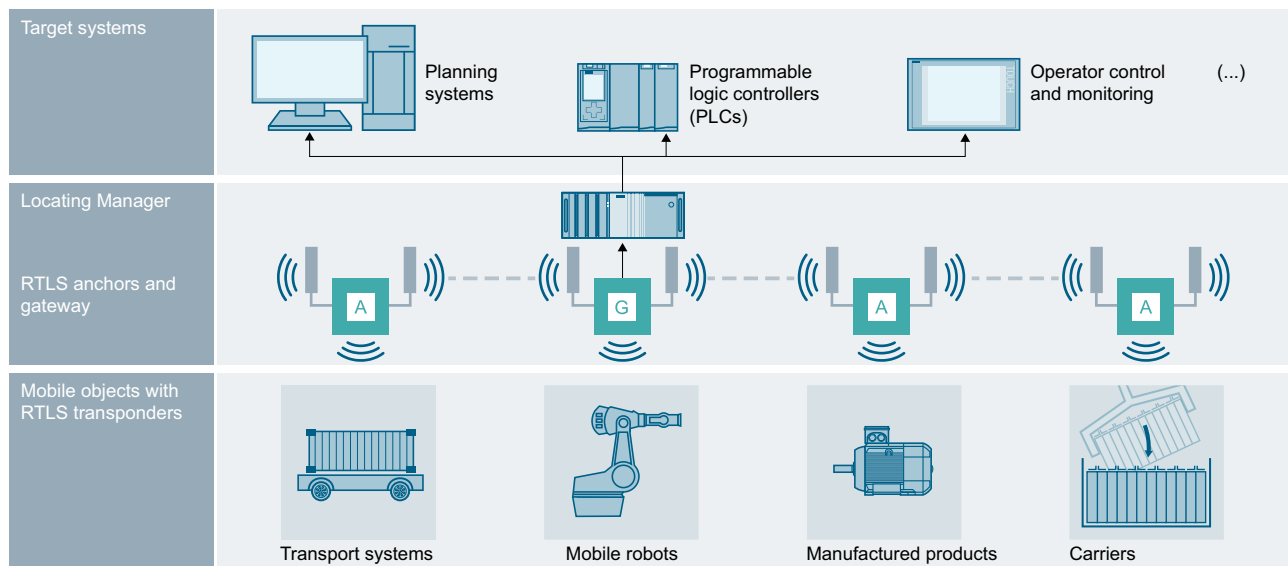


The quality of the data collected in production control and logistics increases significantly through the use of SIMATIC RTLS. In addition to identification of objects and vehicles, position data is available in real time. The localization platform covers entire buildings, halls and factory sites almost completely and ensures a degree of transparency that could not be achieved with established technology so far. This results in competitive advantages for you, such as increased productivity, lower costs and shorter process times. The SIMATIC RTLS localization platform offers a wide product portfolio so that you can always implement the best solution for you. Its unique hybrid technology allows for a perfect match to the application while it ensures the coexistence with other radio technologies at the same time. The high-performance SIMATIC Locating Manager can process a very large number of transponders in real time.

Applications for SIMATIC RTLS can be found in many places throughout industrial automation. The locating and tracking of objects of almost any kind and in real time, e.g. of workpiece holders, tools and ground conveyors, can be used for production control as well as material handling control. Logistical processes, in particular, benefit from the high quality and availability of the location information. The management of vehicle fleets, such as buses and streetcars in public transportation as well as trucks and ground conveyors in the production and logistics environment, is ensured by its own product group within SIMATIC RTLS. From complete monitoring over transmission of status data from the vehicles all the way to automatic loading, cleaning and maintenance processes, the localization platform can offer its support by providing high-quality location information in real time.

Easy integration into your automation level

SIMATIC RTLS can be easily integrated into the IT landscape by means of the SIMATIC Locating Manager software. This ensures you will have an integrated software architecture and significant savings during engineering, commissioning and maintenance. A wide range of software functions (e.g. localization service, network management, 2D View) allow for fast and reliable commissioning as well as integration into the application.



Planning an RTLS system

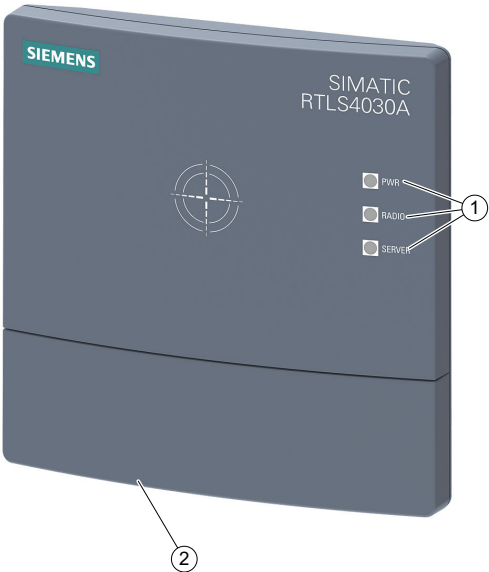
- 4.1 Basics of application planning
- 4.2 Field data of anchors, gateways and transponders
- 4.3 Installation guidelines
- 4.4 Chemical resistance of anchors, gateways and transponders
- 4.5 Directives on electromagnetic compatibility

Anchors

5.1 SIMATIC RTLS4030A

5.1.1 Device description

5.1.1.1 Characteristics

SIMATIC RTLS4030A	Characteristics	
	Design	<ul style="list-style-type: none"> ① Status indicators (LEDs) ② Connector for supply voltage and digital output
	General	<p>The device is the home location for localization in the RTLS localization system.</p> <p>It collects the localization data and sends it to the localization server.</p>
	Area of application	<p>The device is suitable for use in damp environments.</p>
	Supply voltage	<p>The device can be operated with 8 to 30 V DC.</p>

5.1.1.2 Order data RTLS4030A

Table 5-1 Order data RTLS4030A

	Article number
SIMATIC RTLS4030A	6GT2701-5DA03

Table 5-2 Accessories order data (not included in scope of delivery)

	Article number
Power cable (Bulgin 400 Series Buccaneer® PX0410/03S) 3-pin, 5 m	6GT2791-2AH50
Holder for ceiling suspension of anchor/gateway	6GT2790-0BE20
Holder for corner/mast mounting of anchor/gateway	6GT2790-0BE30
Connecting cable for connection to wide-range power supply unit for anchor / gateway 5 m	6GT2791-2PH50

5.1.1.3 Pin assignment



3-pin plug-in connector Buccaneer® PX0412/03P




Connectors: SA3350/1




Sealing cover: PX0480





Pin	Meaning
N	Mains supply (red) 8 ... 30 V DC
L	Grounding terminal (black) GND (0 V)
I	Digital output (brown) Switched input voltage, max. current 200 mA

5.1.1.4 LED status indicator

The operating states of the anchor are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	POWER LED Lights up green when power is supplied to the device through the mains cable
	POWER LED Flashes red once per second when there is an undervoltage at the device
	RADIO LED Is off when the radio signal of the device to the RTLS localization system is inactive

LED	Meaning
	RADIO LED Flashes yellow when the radio signal of the device to the RTLS localization system is active
	SERVER LED Lights up blue when the device is connected to the local network

5.1.1.5 Dimension drawing

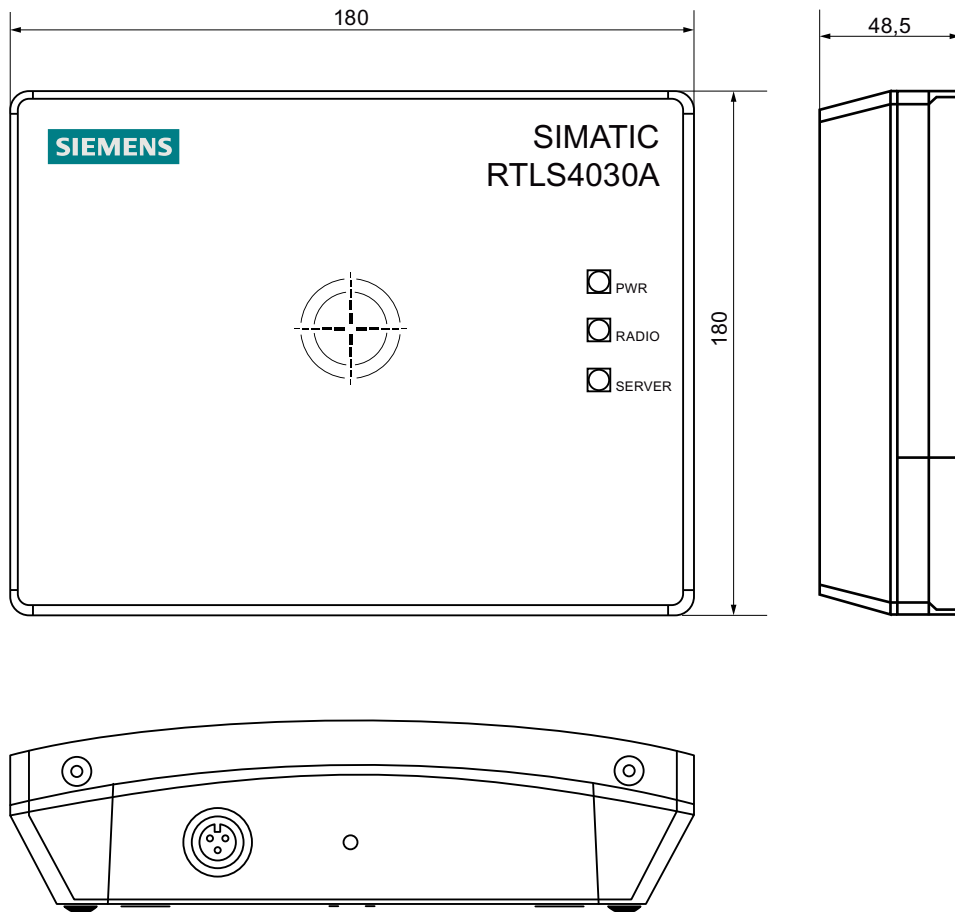


Figure 5-1 Dimension drawing SIMATIC RTLS4030A - All dimensions specified in millimeters

5.1.1.6 Troubleshooting

Error detection	Cause of the error	Troubleshooting
Device does not respond, all LEDs are off	The device is not connected or the power supply unit is not switched on.	Check the supply voltage of the device.
The red LED (POWER) flashes once per second.	Undervoltage on the device	Check the supply voltage of the device.
The yellow LED (RADIO) is off.	Device is not connected to the Locating Manager.	Switch on Locating Manager.

5.1.2 Installation & Operation

5.1.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for fixed installation on walls or ceilings. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities. The devices must be installed so that they are accessible for future maintenance, e.g., for opening the enclosure cover.

Note the specifications in the section "Technical specifications" during installation and operation. Ensure that all screws are securely and firmly screwed into the wall / ceiling and can support the weight of the device and its wiring.

Make sure that the ambient temperature does not exceed 50 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the Twist-Lock connectors are inserted correctly to prevent moisture from entering the enclosure.

Make sure that the wiring is correct before you start up the device.

Only use the cables described in the manual, supplied with the device or otherwise prescribed. SIEMENS AG is not liable for damages or functional limitations caused by the use of other cables.

Protect the device from penetrating moisture by closing off connectors that are not in use with suitable covers. These covers are installed on the device.


Supply voltage

The device can be operated with a DC voltage of 8 to 30 volts.

5.1 SIMATIC RTLS4030A

When the supply voltage is connected to the power plug, all LEDs flash briefly for a moment. The POWER LED lights up as soon as voltage is present. Make sure that a cable fuse is installed in front of the device.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications". The maximum length of the 24 V power cable is 3 m.

 CAUTION
Safety extra low voltage
The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)
This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

5.1.2.2 Installation options

Installation without holder

Follow the steps below to mount the device without holder to the wall:

1. Draw the bore holes on the wall according to the following drilling pattern.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the device to the wall using the screws (M4). (Screws are not supplied with the device.)

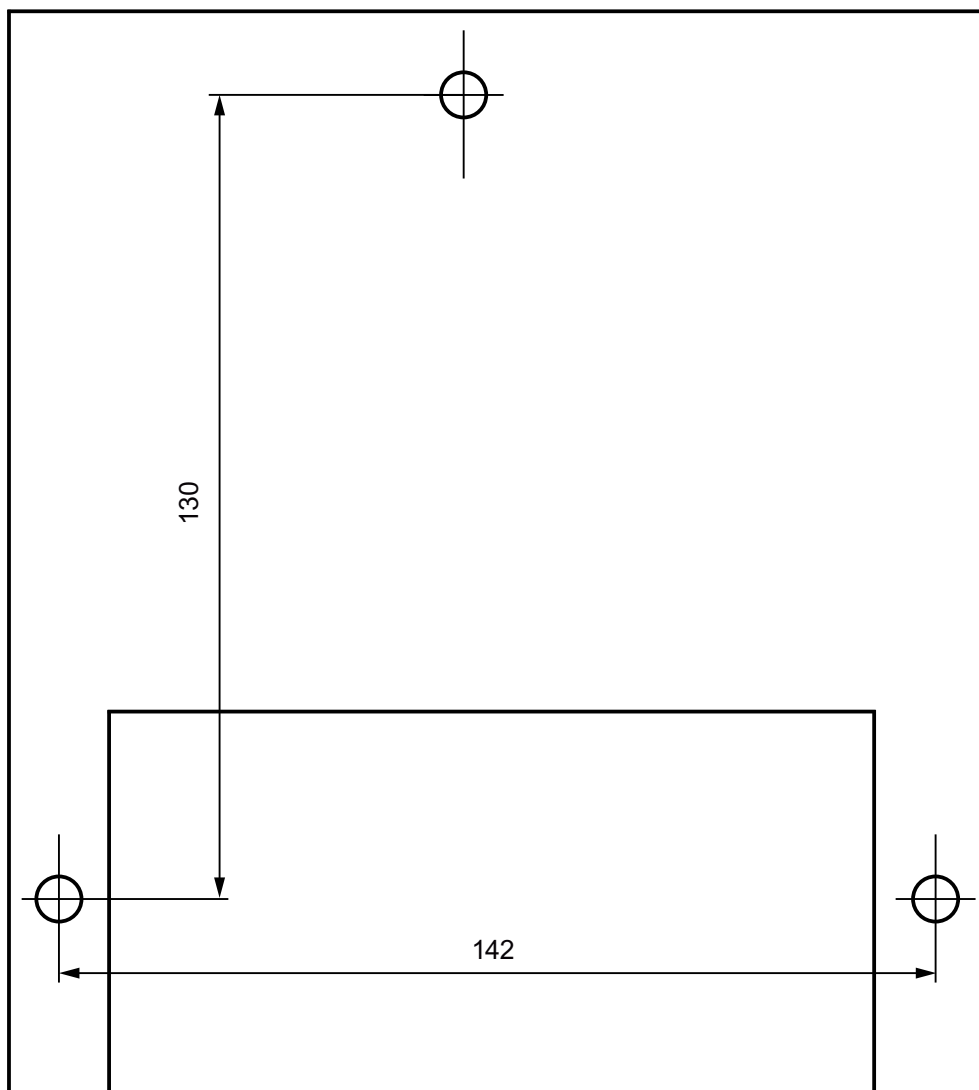


Figure 5-2 Drilling pattern - All dimensions specified in millimeters.

Installation with support - Ceiling installation

Follow the steps below to mount the device to the ceiling:

1. Use the mounting plate as template and draw the bore holes on the ceiling.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the mounting plate to the ceiling.
5. Install the device to the mounting plate using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Corner installation

Follow the steps below to mount the device to a corner:

1. Use the corner support as template and draw the bore holes on the corner.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the corner support to the corner.
5. Mount the device to the corner support using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Mast mounting

Follow the steps below to mount the device to a mast:

1. Use the mast mount as template and draw the bore holes on the mast.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Install the mast mount to the mast.
5. Install the device to the mast mount using the screws (M4). (Screws are not supplied with the device.)

Note

If drilling is not possible, you can also fasten the mast mount to the mast with cable ties, for example.

5.1.2.3 Operation

The device is not suitable for operation in hazardous areas.

Operation of the system to EN 60950-1 is only safe when the housing cover is installed (cooling, fire protection, interference suppression).

In case of emergencies (e.g. when the enclosure is damaged, when liquids or foreign objects are entering the device), the device must be disconnected from the power supply and maintenance must be contacted immediately.

5.1.2.4 Cleaning and maintenance

The device may only be opened by suitably trained and qualified personnel. Only authorized dealers are permitted to repair the device.

Unauthorized opening of and improper repairs to the device may cause substantial risks to the user. As soon as the device was opened without permission, warranty and liability of the Siemens AG are rendered null and void.

Do not clean the enclosure with abrasive, alkaline or aggressive cleaning products or aids.

5.1.3 Technical specifications

Table 5-3 Technical specifications of the anchor RTLS4030A

6GT2701-5DA03	
Product name	SIMATIC RTLS4030A
PULSE radio frequencies	
Wireless method	IEEE 802.15.4-2011 UWB
Transmission speed	6.8 Mbps
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.001 ... 0.037 mW (-41.3 dBm/MHz)
Range	Max. 30 m
Accuracy of the localization	0.2 m
Antennas	Built-in UWB antenna
PHASE radio frequencies	
Wireless method	IEEE 802.15.4
Transmission speed	1 Mbps
Operating frequency rated value	2400 ... 2480 MHz
Transmit power	0.022 ... 100 mW
Range	Max. 500 m
Accuracy of the localization	1 m
Antennas	Built-in 2.4 GHz antenna
Bandwidth	2 MHz; data transmission with 802.15.4, channels selectable
Supply voltage, power consumption	
Supply voltage	8 ... 30 V DC
Rated voltage	24 V DC
Power consumption	9 W
Current consumption	Max. 0.38 A
Permitted ambient conditions	
Ambient temperature	-15 ... +50 °C
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	180 x 180 x 48 mm
Weight	Approx. 650 g
Degree of protection	IP65
Method of securing	Fixed mounting on walls or ceilings 3 x M4 screws
Enclosure	Plastic enclosure (ASA and PC)

6GT2701-5DA03	
Color	Titanium gray
Power plug	3-pin plug-in connector with screw-type terminal Bulgin Buccaneer® PX0412/03P

5.1.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mf=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33:
Special conditions for ultra-wideband (UWB) devices
- EN 50121-3-2
Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Devices
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4030A (MLFB 6GT2701-5DA03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L`appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l`appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d`en compromettre le fonctionnement.

5.1.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-15 °C < Tamb. < +50 °C

IP65

U_n = 24 V DC, 380 mA

The equipment also carries the following notes:

XXXYYYZZZ

[= serial number, is assigned during production]

5.2 SIMATIC RTLS4330A

5.2.1 Device description

5.2.1.1 Characteristics

SIMATIC RTLS4330A	Characteristics	
	Design	① Status indicators (LEDs) ② Connector for supply voltage and digital output
	General	The device is the home location for localization in the RTLS localization system. It collects the localization data and sends it to the localization server.
	Area of application	The device is suitable for use in damp environments.
	Supply voltage	The device can be operated with 8 to 30 V DC.

5.2.1.2 Order data RTLS4330A

Table 5-4 Order data RTLS4330A

	Article number
SIMATIC RTLS4330A	6GT2701-5EA03

Table 5-5 Accessories order data (not included in scope of delivery)

	Article number
Power cable (Bulgin 400 Series Buccaneer® PX0410/03S) 3-pin, 5 m	6GT2791-2AH50
Holder for ceiling suspension of anchor/gateway	6GT2790-0BE20
Holder for corner/mast mounting of anchor/gateway	6GT2790-0BE30

5.2.1.3 Pin assignment



3-pin plug-in connector Buccaneer® PX0412/03P




Connectors: SA3350/1






Sealing cover: PX0480



Pin	Description
N	Mains supply (red) 8 ... 30 V DC
L	Grounding terminal (black) GND (0 V)
I	Digital output (brown) Switched input voltage, max. current 200 mA

5.2.1.4 LED status indicator

The operating states of the anchor are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	RUN LED Lights up green when power is supplied to the device through the mains cable
	RUN LED Flashes once per second when there is an undervoltage at the device
	RADIO LED Is off when the radio signal of the device to the RTLS localization system of the device is inactive
	RADIO LED Flashes yellow when the radio signal of the device to the RTLS localization system is active
	SERVER LED Lights up blue when the device is connected to the local network

5.2.1.5 Dimension drawing

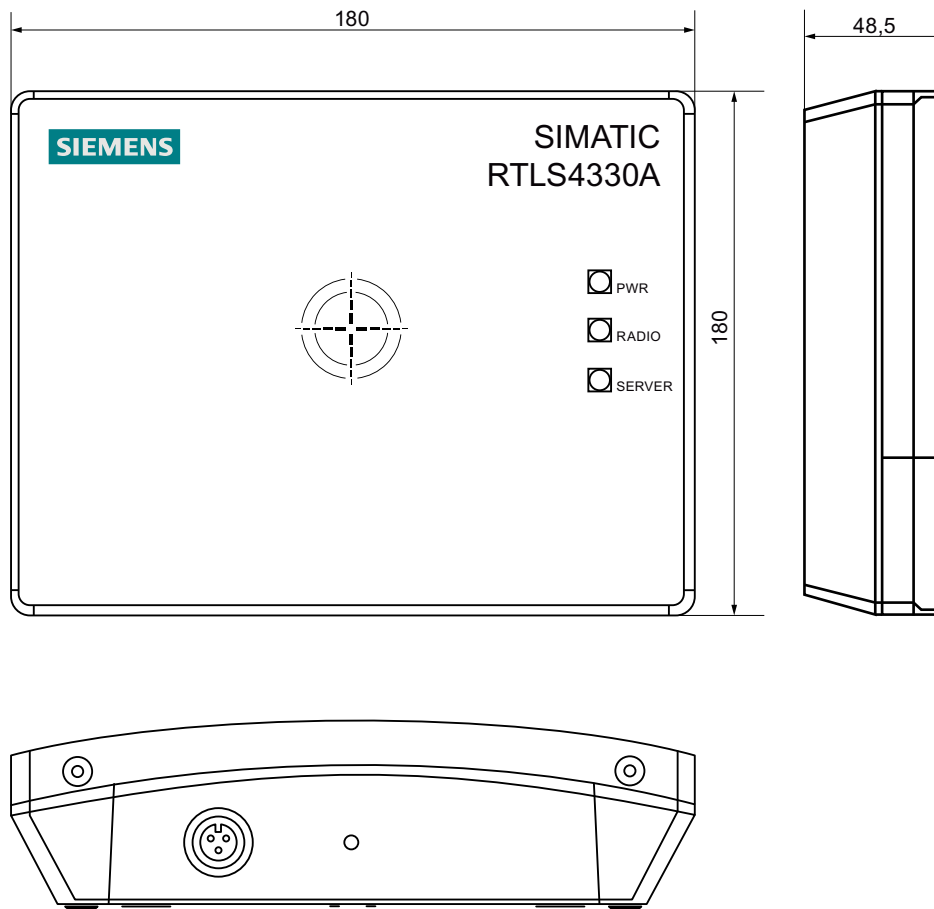


Figure 5-3 Dimension drawing SIMATIC RTLS4330A - All dimensions specified in millimeters

5.2.1.6 Troubleshooting

If a fault occurs, inspect the device for the following errors and take appropriate measures. If there are other undefined errors, please contact Siemens Support (<https://support.industry.siemens.com/cs/start?lc=en-US>).

Error detection	Cause of the error	Troubleshooting
Device does not respond, all LEDs are off	The device is not connected or the power supply unit is not switched on.	Check the supply voltage of the device.
The red LED (RUN) flashes once per second.	Undervoltage on the device	Check the supply voltage of the device.
The yellow LED (RADIO) is off.	Device is not connected to the Locating Manager.	Switch on Locating Manager.
The blue LED (SERVER) is off.	Device has no network connection (LAN)	Check local network, Check firewall
The blue LED (SERVER) flashes.	Device is not connected to the Locating Manager.	Activate Locating Manager

5.2.2 Installation & Operation

5.2.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for fixed installation on walls or ceilings. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities. The devices must be installed so that they are accessible for future maintenance, e.g., for opening the enclosure cover.

Note the specifications in the section "Technical specifications" during installation and operation. Ensure that all screws are securely and firmly screwed into the wall / ceiling and can support the weight of the device and its wiring.

Make sure that the ambient temperature does not exceed 60 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the Twist-Lock connectors are inserted correctly to prevent moisture from entering the enclosure.

Make sure that the wiring is correct before you start up the device.

Only use the cables described in the manual, supplied with the device or otherwise prescribed. SIEMENS AG is not liable for damages or functional limitations caused by the use of other cables.

Protect the device from penetrating moisture by closing off connectors that are not in use with suitable covers. These covers are installed on the device.

Supply voltage

When the supply voltage is connected to the power plug, all LEDs flash briefly for a moment. The POWER LED lights up as soon as voltage is present.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications".

**CAUTION****Safety extra low voltage**

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)

This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

5.2.2.2 Installation options

Installation without holder

Follow the steps below to mount the device without holder to the wall:

1. Draw the bore holes on the wall according to the following drilling pattern.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the device to the wall using the screws (M4). (Screws are not supplied with the device.)

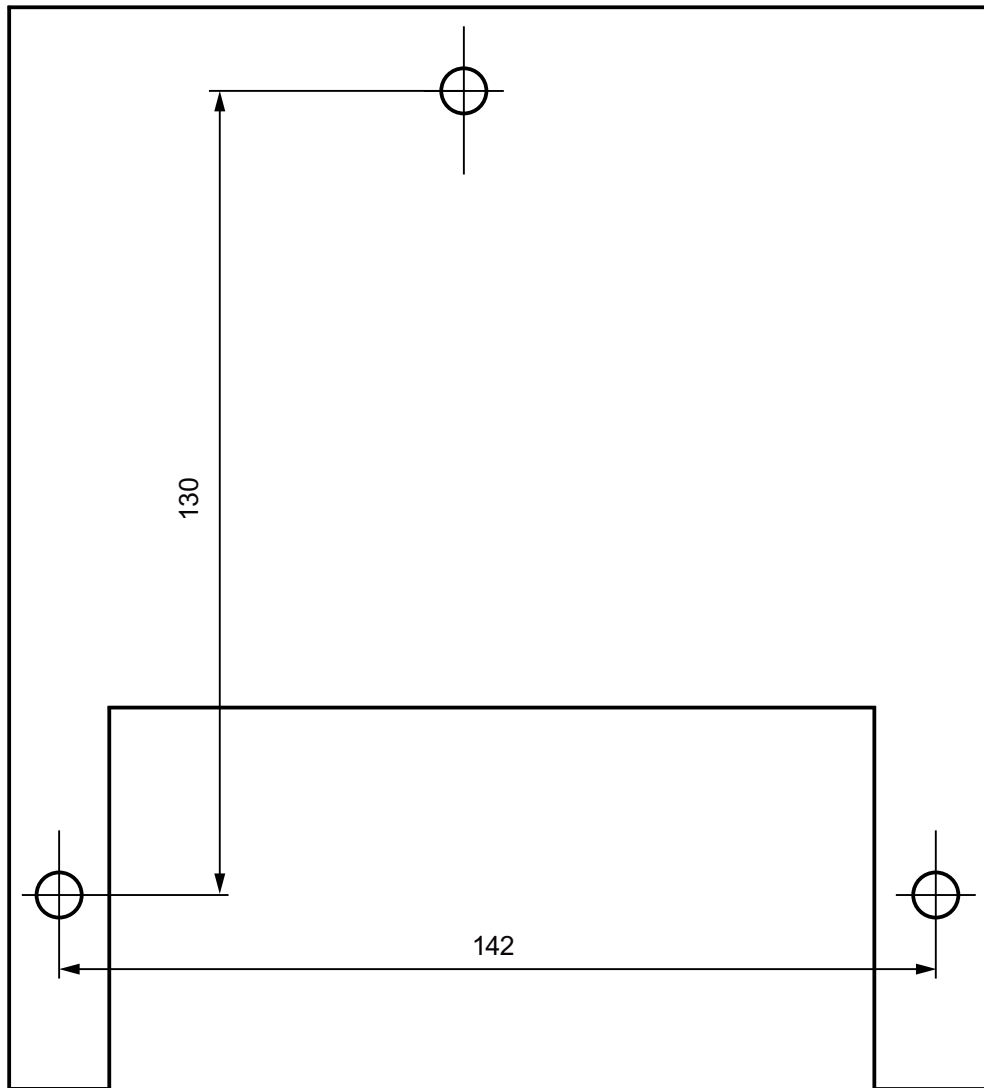


Figure 5-4 Drilling pattern - All dimensions specified in millimeters.

Installation with support - Ceiling installation

Follow the steps below to mount the device to the ceiling:

1. Use the mounting plate as template and draw the bore holes on the ceiling.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the mounting plate to the ceiling.
5. Install the device to the mounting plate using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Corner installation

Follow the steps below to mount the device to a corner:

1. Use the corner support as template and draw the bore holes on the corner.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the corner support to the corner.
5. Mount the device to the corner support using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Mast mounting

Follow the steps below to mount the device to a mast:

1. Use the mast mount as template and draw the bore holes on the mast.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Install the mast mount to the mast.
5. Install the device to the mast mount using the screws (M4). (Screws are not supplied with the device.)

Note

If drilling is not possible, you can also fasten the mast mount to the mast with cable ties, for example.

5.2.2.3 Operation

The device is not suitable for operation in hazardous areas.

Operation of the system to EN 60950-1 is only safe when the housing cover is installed (cooling, fire protection, interference suppression).

In case of emergencies (e.g. when the enclosure is damaged, when liquids or foreign objects are entering the device), the device must be disconnected from the power supply and maintenance must be contacted immediately.

An anchor is ready for operation when the upper green LED lights up permanently. The other two LEDs play no role in operational readiness.

5.2.2.4 Cleaning and maintenance

The device may only be opened by suitably trained and qualified personnel. Only authorized dealers are permitted to repair the device.

Unauthorized opening of and improper repairs to the device may cause substantial risks to the user. As soon as the device was opened without permission, warranty and liability of the Siemens AG are rendered null and void.

Do not clean the enclosure with abrasive, alkaline or aggressive cleaning products or aids.

5.2.3 Technical specifications

Table 5-6 Technical specifications of the anchor RTLS4330A

6GT2701-5EA03	
Product name	SIMATIC RTLS4330A
PULSE radio frequencies	
Wireless method	IEEE 802.15.4-2001 UWB
Transmission speed	6.8 Mbps
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.037 mW (-41.3 dBm/MHz)
Antenna	Built-in UWB antenna
CHIRP radio frequencies	
Wireless method	IEEE 802.15.4a
Transmission speed	1 Mbps
Operating frequency rated value	2.45 GHz ISM band
Transmit power	Max. 100 mW, can be set Min. 0.00025 mW, can be set
Antenna	Installed 2.4 GHz - antenna
Supply voltage, power consumption	
Supply voltage	8 ... 30 V DC
Rated voltage	24 V DC
Power consumption	7 W
Permitted ambient conditions	
Ambient temperature	-15 ... +50 °C
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	180 x 180 x 48 mm
Weight	Approx. 650 g
Method of securing	Fixed mounting on walls or ceilings 3 x M4 screws
Enclosure	Plastic enclosure (ASA and PC)
Degree of protection	IP65

6GT2701-5EA03

Power plug	3-pin plug-in connector with screw-type terminal Bulgin Buceaneer® PX0412/03P
Power connection	Supply voltage

5.2.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33:
Special conditions for ultra-wideband (UWB) devices
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4330A (MLFB 6GT2701-5EA03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

5.2.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-15 °C < Tamb. < +50 °C

IP65

U_n= 24 V DC, XX mA

The equipment also carries the following notes:

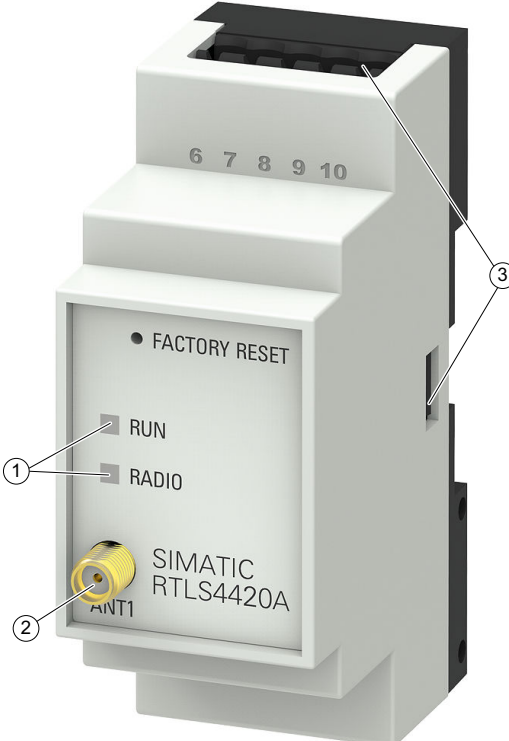
XXXYYYYZZZ

[= serial number, is assigned during production]

5.3 SIMATIC RTLS4420A

5.3.1 Device description

5.3.1.1 Characteristics

SIMATIC RTLS4420A	Characteristics	
	Design	<ul style="list-style-type: none"> ① Status indicators (LEDs) ② Antenna connector for RP SMA antenna ③ Connector for supply voltage and digital outputs
	General	<p>The device is the home location for localization in the RTLS localization system.</p> <p>It collects the localization data and sends it to the localization server.</p>
	Area of application	
	Supply voltage	The device can be operated with 8 to 30 V DC.

5.3.1.2 Order data RTLS4420A

Table 5-7 Order data RTLS4420A

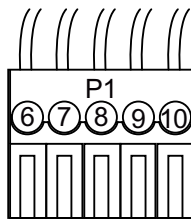
	Article number
SIMATIC RTLS4420A including power plug (5-pin)	6GT2701-2CA02

Table 5-8 Accessories order data (not included in scope of delivery)

	Article number
Antenna with N-M connector 4.5 dBi	6GT2706-0BA00
IWLAN antenna ANT795-6MN	6GK5795-6MN10-0AA6
Mounting set for ANT795-6MN including mounting aid, angle adapter, N-Connect, fixing screws, Compact instructions	6GK5795-6MN01-0AA6
Flexible connecting cable (e.g. for connecting an antenna to an access point)	
1 m	6XV1875-5CH10
2 m	6XV1875-5CH20
5 m	6XV1875-5CH50
HF coupler for connecting two RCoax cables	6GK5798-0CP00-1AA0

5.3.1.3 Pin assignment

P1 - Power



5-pin connector with screw terminal
0.13 mm² to 3.3 mm²

Pin	Description
6	Digital output
7	GND (ground)
8	GND (ground)
9	Power supply
10	Not used

Digital output - Pin 6

A high-side switch switches the supply voltage to the digital output (pin 6).






Output voltage: 0 (switched off) or input voltage (switched on)




Maximum output current: 100 mA



P2 - Antenna - RP-SMA connection

Pin	Description
1	Antenna
Shielding	GND, shielding

5.3.1.4 LED status indicator

The operating states of the anchor are indicated by the LEDs. The states can be off , on  and flashing .

RADIO LED (D1)	Meaning
	Is off when the device is inactive
	Flashes regularly in yellow when an error is indicated
	Flashes yellow when the radio signal of the device to the RTLS localization system is active

RUN LED (D2)	Meaning
□	Is off when the device is inactive
	Flashes regularly in green when an error is indicated
	Is on when the device is in operation.

5.3.1.5 Dimension drawing

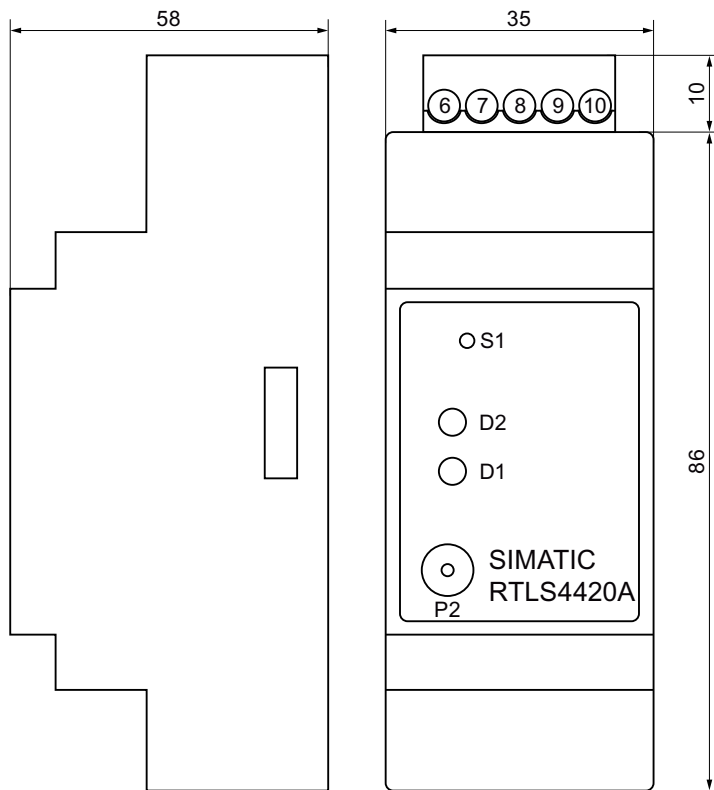


Figure 5-5 Dimension drawing SIMATIC RTLS4420A - All dimensions specified in millimeters

5.3.1.6 Troubleshooting

Error detection	Cause of the error	Troubleshooting
Device does not respond, all LEDs are off	Device is not connected or not switched on	Check the supply voltage of the device, switch on device
The green LED (RUN) flashes during operation.	Error in the device	Reset by switching the device off and on again; if the error occurs again, contact SIEMENS Service.

5.3.2 Installation & Operation

5.3.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for installation to a standard rail permanently installed in a cabinet or to a wall or ceiling. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities. The devices must be installed so that they are accessible for future maintenance, e.g., for opening the enclosure cover.

Note the specifications in the section "Technical specifications" during installation and operation.

Make sure that the ambient temperature does not exceed 70 °C and that the device is not installed at a location where it is exposed to direct sunlight. Protect the device against moisture.

Connection of the cables

Make sure that the wiring is correct before you start up the device.

Connection of the antenna

Connect the antenna to the RP SMA connection (P2). The device must not be operated without an antenna. The device must be turned off or disconnected from the power to change or remove the antenna.

The antennas of all wireless devices must be equally aligned. The antenna must be connected as far up as possible and be in the line of sight of the possible transponder positions.

Supply voltage

When the supply voltage is connected at the "Power" input, all LEDs flash briefly for a moment. The POWER LED lights up permanently in green as soon as voltage is present.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications".

<p>⚠ CAUTION</p> <p>Safety extra low voltage</p> <p>The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)</p> <p>This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).</p>

5.3.3 Technical specifications

Table 5-9 Technical specifications of the anchor RTLS4420A

6GT2701-2CA02	
Product name	SIMATIC RTLS4420A
Wireless frequencies	
Wireless method	IEEE 802.15.4a nanoLOC - Chirp Spread Spectrum (CSS)
Transmission speed	1 Mbps
Operating frequency	2400 ... 2480 MHz
Operating frequency rated value	2.45 GHz ISM band
Transmit power	0.00025 ... 100 mW
Range	Max. 1000 m
Accuracy of the localization	1.5 m
Chirp bandwidth	80 MHz
Range with 1 Mb	Indoors: Max. 90 m Outdoors: Max. 1,000 m (typically 500 m)
Supply voltage, power consumption	
Supply voltage	8 ... 30 V DC
Rated voltage	24 V DC
Power consumption	Max. 1.6 W
Current consumption	Max. 0.2 A
Antenna connector	RP-SMA screw connection (socket)

6GT2701-2CA02

Digital inputs and outputs

Input voltage	0 to 24 V DC
Output current	Max. 100 mA, short-circuit proof
Output voltage	0 V or input voltage
Output	High-side-switch: Switches the input voltage

Permitted ambient conditions

Ambient temperature	-40 ... +70 °C
---------------------	----------------

Design, dimensions, weights, connectors

Dimensions (L x W x H)	35 x 86 x 58 mm
Weight	80 g
Degree of protection	IP40
Method of securing	Standard mounting rail DIN 60 715 TH35
Enclosure	Plastic housing
Color	light gray
P1 - Power connection	5-pin connector terminal 0.13 mm ² ... 3.3 mm ²
P2 - Antenna	RP-SMA - Antenna screw connection (socket)
S1 - Button	To restore the factory settings

5.3.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4420A (MLFB 6GT2701-2CA02); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and

5.3 SIMATIC RTLS4420A

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

5.3.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-40 °C < Tamb. < +70 °C
 IP40
 U_n = 24 V DC, 200 mA

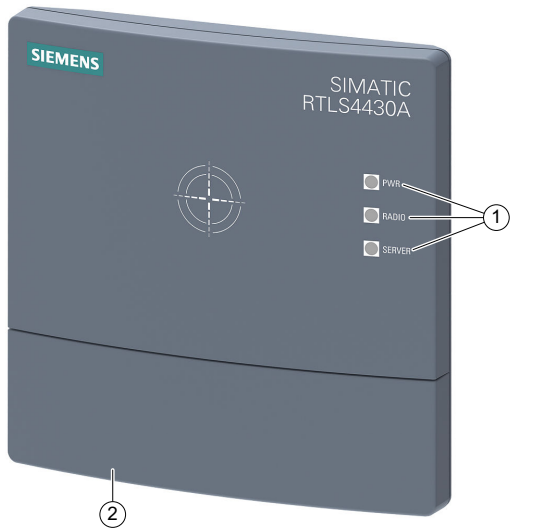
The equipment also carries the following notes:

XXXXXXXXXX [= serial number, is assigned during production]

5.4 SIMATIC RTLS4430A

5.4.1 Device description

5.4.1.1 Characteristics

SIMATIC RTLS4430A	Characteristics	
	Design	① Status indicators (LEDs) ② Connector for supply voltage and digital outputs
	General	The device is the home location for localization in the RTLS localization system. It collects the localization data and sends it to the localization server.
	Area of application	The device is suitable for use in damp environments.
	Supply voltage	The device can be operated with 8 to 30 V DC.

5.4.1.2 Order data RTLS4430A

Table 5-10 Order data RTLS4430A

	Article number
SIMATIC RTLS4430A	6GT2701-5CA02
SIMATIC RTLS4430A specially for CD	6GT2701-5CA02-0AX0

Table 5-11 Accessories order data (not included in scope of delivery)

	Article number
Power cable (Bulgin 400 Series Buccaneer® PX0410/03S) 3-pin, 5 m	6GT2791-2AH50
Holder for ceiling suspension of anchor/gateway	6GT2790-0BE20
Holder for corner/mast mounting of anchor/gateway	6GT2790-0BE30
Connecting cable for connection to wide-range power supply unit for anchor / gateway 5 m	6GT2791-2PH50

5.4.1.3 Pin assignment



3-pin plug-in connector Buccaneer® PX0412/03P




Connectors: SA3350/1




Sealing cover: PX0480





Pin	Meaning
N	Mains supply (red) 8 ... 30 V DC
L	Grounding terminal (black) GND (0 V)
I	Digital output (brown) Switched input voltage, max. current 200 mA

5.4.1.4 LED status indicator

The operating states of the anchor are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	POWER LED Lights up green when power is supplied to the device through the mains cable
	POWER LED Flashes red once per second when there is an undervoltage at the device
	RADIO LED Is off when the radio signal of the device to the RTLS localization system is inactive

LED	Meaning
	RADIO LED Flashes yellow when the radio signal of the device to the RTLS localization system is active
	SERVER LED Lights up blue when the device is connected to the local network

5.4.1.5 Dimension drawing

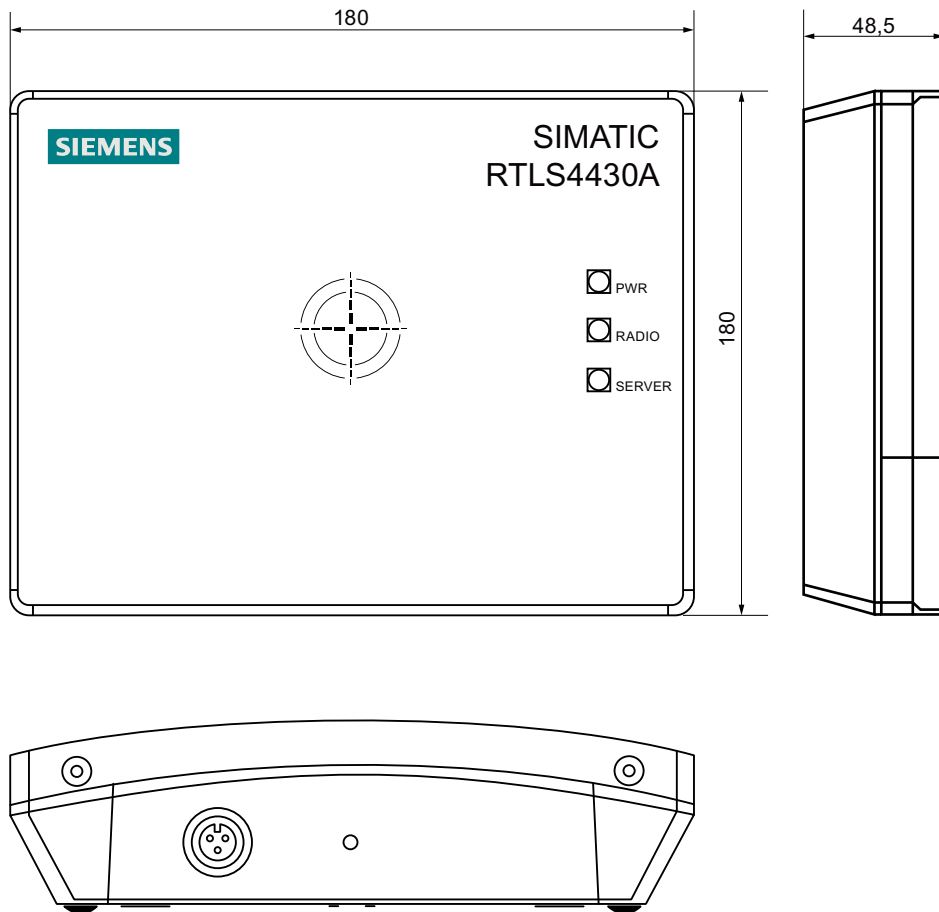


Figure 5-6 Dimension drawing SIMATIC RTLS4430A - All dimensions specified in millimeters

5.4.1.6 Troubleshooting

Error detection	Cause of the error	Troubleshooting
Device does not respond, all LEDs are off	The device is not connected or the power supply unit is not switched on.	Check the supply voltage of the device.
The red LED (POWER) flashes once per second.	Undervoltage on the device	Check the supply voltage of the device.
The yellow LED (RADIO) is off.	Device is not connected to the Locating Manager.	Switch on Locating Manager.

5.4.2 Installation & Operation

5.4.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for fixed installation on walls or ceilings. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, the device must be installed according to the currently applicable BG regulations "Electrical installations and equipment" (BGI A3). The devices must be installed so that they are accessible for future maintenance, e.g., for opening the enclosure cover.

Note the specifications in the section "Technical specifications" during installation and operation. Ensure that all screws are securely and firmly screwed into the wall / ceiling and can support the weight of the device and its wiring.

Make sure that the ambient temperature does not exceed 60 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the Twist-Lock connectors are inserted correctly to prevent moisture from entering the enclosure.

Make sure that the wiring is correct before you start up the device.

Only use the cables described in the manual, supplied with the device or otherwise prescribed. SIEMENS AG is not liable for damages or functional limitations caused by the use of other cables.

Protect the device from penetrating moisture by closing off connectors that are not in use with suitable covers. These covers are installed on the device.

Supply voltage

When the supply voltage is connected at the "Power" input, all LEDs light briefly for a moment. The POWER LED lights up permanently in green as soon as voltage is present.

Make sure that a cable fuse is installed upstream of the device.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications".

The maximum length of the 24 V power cable is 3 m. The supply line must be protected according to the Technical Specifications.



CAUTION

Safety extra low voltage

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)

This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

5.4.2.2 Installation options

Installation without holder

Follow the steps below to mount the device without holder to the wall:

1. Draw the bore holes on the wall according to the following drilling pattern.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the device to the wall using the screws (M4). (Screws are not supplied with the device.)

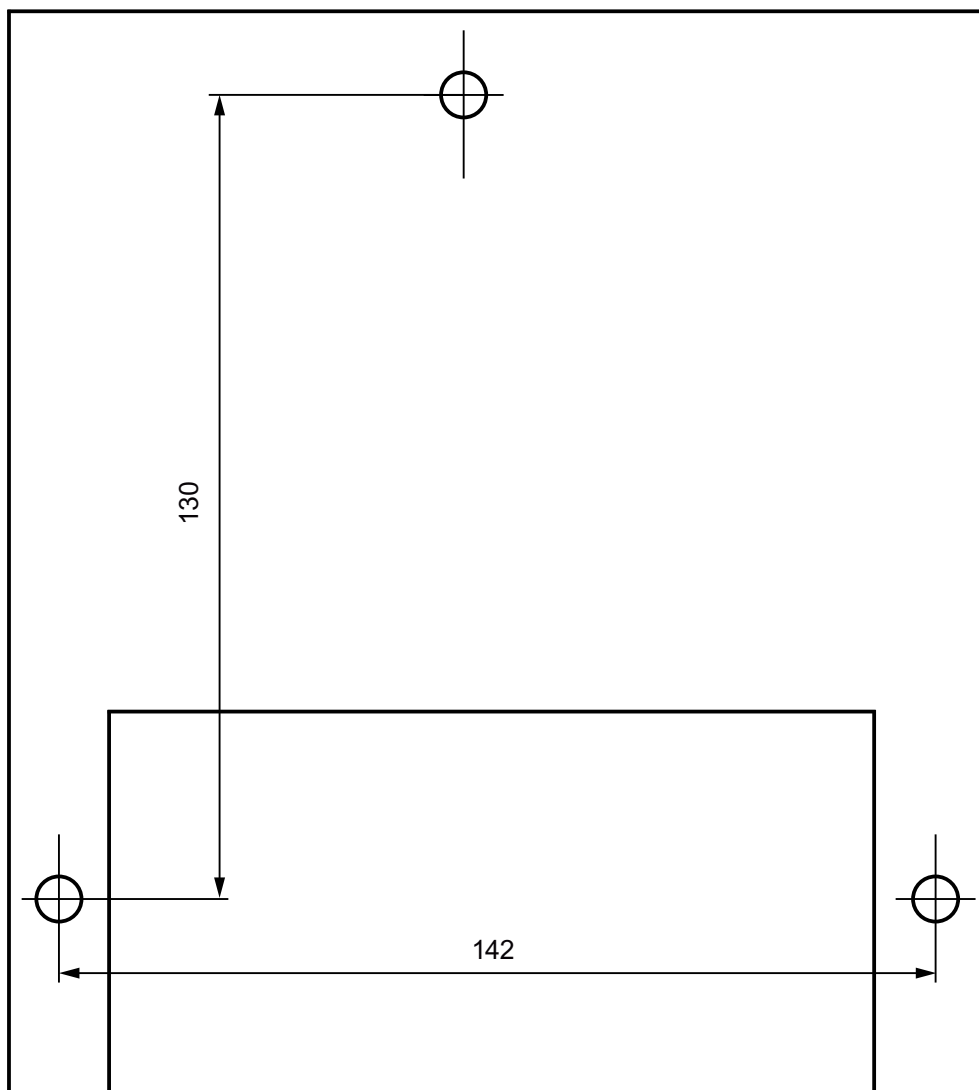


Figure 5-7 Drilling pattern - All dimensions specified in millimeters.

Installation with support - Ceiling installation

Follow the steps below to mount the device to the ceiling:

1. Use the mounting plate as template and draw the bore holes on the ceiling.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the mounting plate to the ceiling.
5. Install the device to the mounting plate using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Corner installation

Follow the steps below to mount the device to a corner:

1. Use the corner support as template and draw the bore holes on the corner.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the corner support to the corner.
5. Mount the device to the corner support using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Mast mounting

Follow the steps below to mount the device to a mast:

1. Use the mast mount as template and draw the bore holes on the mast.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Install the mast mount to the mast.
5. Install the device to the mast mount using the screws (M4). (Screws are not supplied with the device.)

Note

If drilling is not possible, you can also fasten the mast mount to the mast with cable ties, for example.

5.4.2.3 Operation

The device is not suitable for operation in hazardous areas.

Operation of the system to EN 60950-1 is only safe when the housing cover is installed (cooling, fire protection, interference suppression).

In case of emergencies (e.g. when the enclosure is damaged, when liquids or foreign objects are entering the device), the device must be disconnected from the power supply and maintenance must be contacted immediately.

5.4.2.4 Cleaning and maintenance

The device may only be opened by suitably trained and qualified personnel. Only authorized dealers are permitted to repair the device.

Unauthorized opening of and improper repairs to the device may cause substantial risks to the user. As soon as the device was opened without permission, warranty and liability of the Siemens AG are rendered null and void.

Do not clean the enclosure with abrasive, alkaline or aggressive cleaning products or aids.

5.4.3 Technical specifications

Table 5-12 Technical specifications of the anchor RTLS4430A

6GT2701-5CA02	
6GT2701-5CA02-0AX0	
Product name	SIMATIC RTLS4430A
Wireless frequencies	
Wireless method	IEEE 802.15.4a
Transmission speed	1 Mbps
Operating frequency	2400 ... 2480 MHz
Operating frequency rated value	2.45 GHz ISM band
Transmit power	0.00025 ... 100 mW
Range	Max. 1000 m
Accuracy of the localization	1.5 m
Antennas	Built-in 2.4 GHz antenna
Supply voltage, power consumption	
Supply voltage	8 ... 30 V DC
Rated voltage	24 V DC
Power consumption	Max. 15 W
Current consumption	0.63 A
Permitted ambient conditions	
Ambient temperature	-40 to +60 °C
Design, dimensions, weights, connectors	
Dimensions (L x W x H)	180 x 180 x 48 mm
Weight	Approx. 650 g
Degree of protection	IP65
Method of securing	Fixed mounting on walls or ceilings 3 x M4 screws
Enclosure	Plastic enclosure (ASA and PC)
Color	Titanium gray
Power plug	3-pin plug-in connector with screw-type terminal Bulgin Bucaneer® PX0412/03P

5.4.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems

- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4430A (MLFB 6GT2701-5CA02); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

5.4.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-40 °C < Tamb. < +60 °C

IP65

U_n= 24 V DC, 630 mA

The equipment also carries the following notes:

XXXYYYZZZ

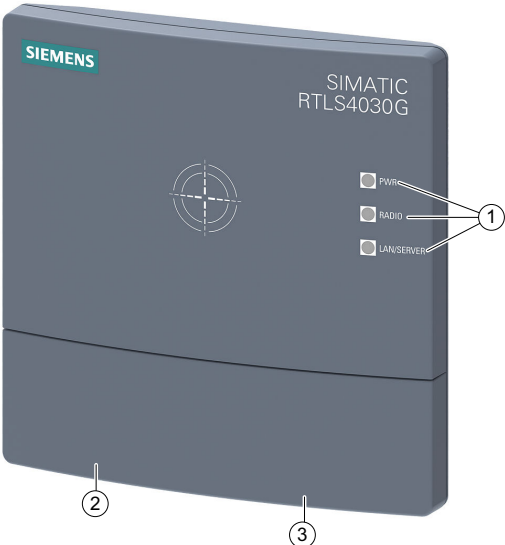
[= serial number, is assigned during production]

Gateways

6.1 SIMATIC RTLS4030G

6.1.1 Device description

6.1.1.1 Characteristics

SIMATIC RTLS4030G	Characteristics	
	Design	<ul style="list-style-type: none"> ① Status indicators (LEDs) ② Connector for power supply over mains connection ③ Ethernet port; Alternative power supply using Power over Ethernet (PoE)
	General	The device is the home location for localization in the RTLS localization system. It can be connected to the local IT infrastructure over Ethernet. This connection sets up an exchange between the node, the localization network and the localization server.
	Area of application	The device is suitable for use in damp environments.
	Supply voltage	The device can be operated with 8 to 30 V DC.

Note

For larger localization networks, we recommend installing multiple gateways to reduce the number of localizable transponders and increase the availability of position data.

6.1.1.2 Order data RTLS4030G

Table 6-1 Order data RTLS4030G

	Article number
SIMATIC RTLS4030G	6GT2701-5DB03

Table 6-2 Accessories order data (not included in scope of delivery)

	Article number
Power cable (Bulgin 400 Series Buccaneer® PX0410/03S) 3-pin, 5 m	6GT2791-2AH50
Bayonet connector (Amphenol RCP-00BMMS-TLM7001) made of plastic for RJ45 connector for cable mounting (IP65) at gateway	6GT2790-0CB00
Holder for ceiling suspension of anchor/gateway	6GT2790-0BE20
Holder for corner/mast mounting of anchor/gateway	6GT2790-0BE30
Connecting cable for connection to wide-range power supply unit for an- chor / gateway 5 m	6GT2791-2PH50
Protective jacket IP65 for RJ45 connector	6GT2790-0CB00
TP cable 4 x 2 with 2 RJ45 connectors	
1 m	6XV1870-3QH10
3 m	6XV1870-3QH30
6 m	6XV1870-3QH60
10 m	6XV1870-3QN10
20 m	6XV1870-3QN20
25 m	6XV1870-3QN25
50 m	6XV1870-3QN50

6.1.1.3 Pin assignment

Ethernet socket RJ45

The device may only be connected to the Ethernet via the plug-in connectors shown below.

When connecting the Ethernet cable, ensure that the twist-lock connectors are correctly secured.

Connections

3-pin plug-in connector Buccaneer® PX0412/03P

Connectors: SA3350/1

Sealing cover: PX0480



Pin	Description
N	Mains supply (red) 8 ... 30 V DC
L	Grounding terminal (black) GND (0 V)
I	Digital output (brown) Switched input voltage, max. current 200 mA

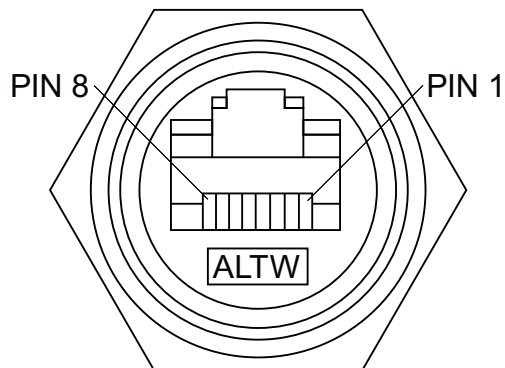












Figure 6-1 RJ45 connector Amphenol LTW PCP-00AMMA-TLM7001

6.1.1.4 LED status indicator

The operating states of the gateways are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	POWER LED Lights up green when power is supplied to the device through the mains cable
	POWER LED Flashes red once per second when there is an undervoltage at the device
	RADIO LED Is off when the radio signal of the device to the RTLS localization system is inactive
	RADIO LED Flashes yellow when the radio signal of the device to the RTLS localization system is active
	LAN/SERVER LED Lights up blue when the device is connected to the network over LAN (Ethernet)
	LAN/SERVER LED Flashes blue once per second when the device is connected to the network but there is no connection to the RTLS localization server
	LAN/SERVER LED Is off when the device is not connected to the network

6.1.1.5 Dimension drawing

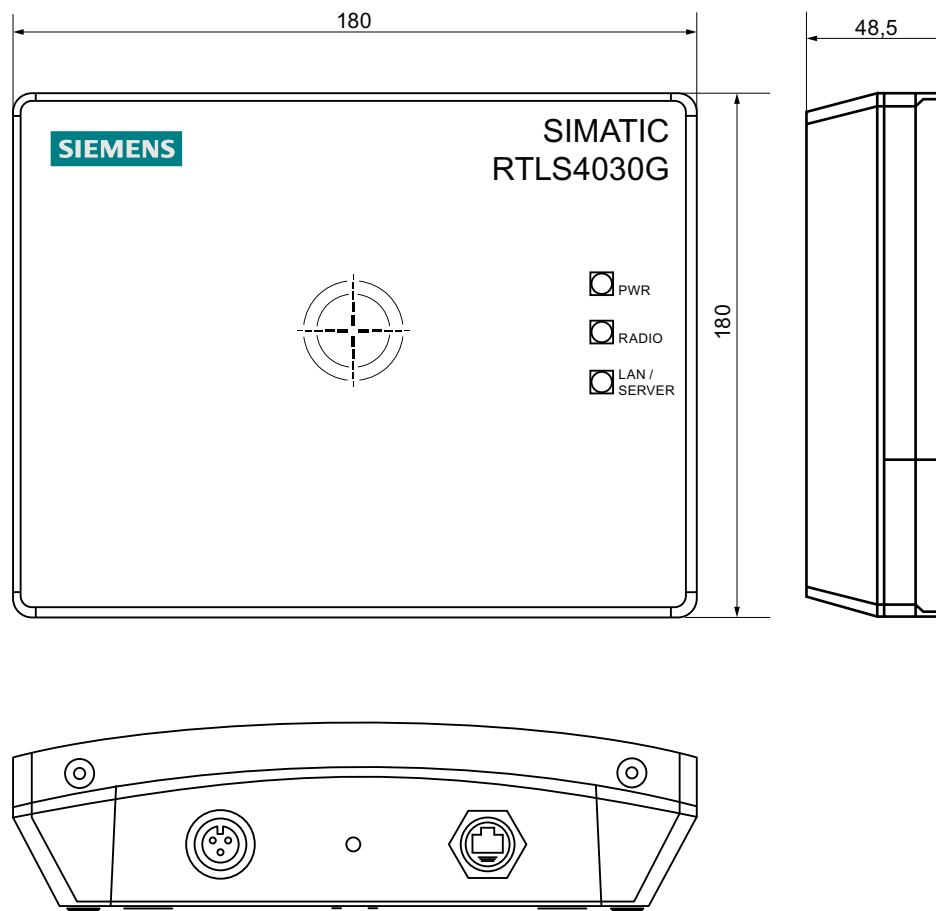


Figure 6-2 Dimension drawing SIMATIC RTLS4030G - All dimensions specified in millimeters

6.1.1.6 Troubleshooting

Error detection	Cause of the error	Troubleshooting
Device does not respond, all LEDs are off	The device is not connected or the power supply unit is not switched on.	Check the supply voltage of the device.
The red LED (POWER) flashes once per second.	Undervoltage on the device	Check the supply voltage of the device.
The yellow LED (RADIO) is off.	Device is not connected to the Locating Manager.	Switch on Locating Manager.
The blue LED (LAN/SERVER) is off.	Device has no network connection (LAN)	Check the local network and the firewall.

6.1.2 Installation & Operation

6.1.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for fixed installation on walls or ceilings. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities. The devices must be installed so that they are accessible for future maintenance, e.g., for opening the enclosure cover.

Note the specifications in the section "Technical specifications" during installation and operation. Ensure that all screws are securely and firmly screwed into the wall / ceiling and can support the weight of the device and its wiring.

Make sure that the ambient temperature does not exceed 50 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the Twist-Lock connectors are inserted correctly to prevent moisture from entering the enclosure.

Make sure that the wiring is correct before you start up the device.

Only use the cables described in the manual, supplied with the device or otherwise prescribed. SIEMENS AG is not liable for damages or functional limitations caused by the use of other cables.

Protect the device from penetrating moisture by closing off connectors that are not in use with suitable covers. These covers are installed on the device.

Supply voltage

When the supply voltage is connected to the power plug, all LEDs flash briefly for a moment. The POWER LED lights up as soon as voltage is present.

The device can be supplied with power via the Ethernet cable. In this case, the power plug should be tightly sealed to prevent moisture from penetrating. Do not supply the device with power through the mains and the PoE connection at the same time.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications".

**CAUTION****Safety extra low voltage**

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)

This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

6.1.2.2 Installation options

Installation without holder

Follow the steps below to mount the device without holder to the wall:

1. Draw the bore holes on the wall according to the following drilling pattern.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the device to the wall using the screws (M4). (Screws are not supplied with the device.)

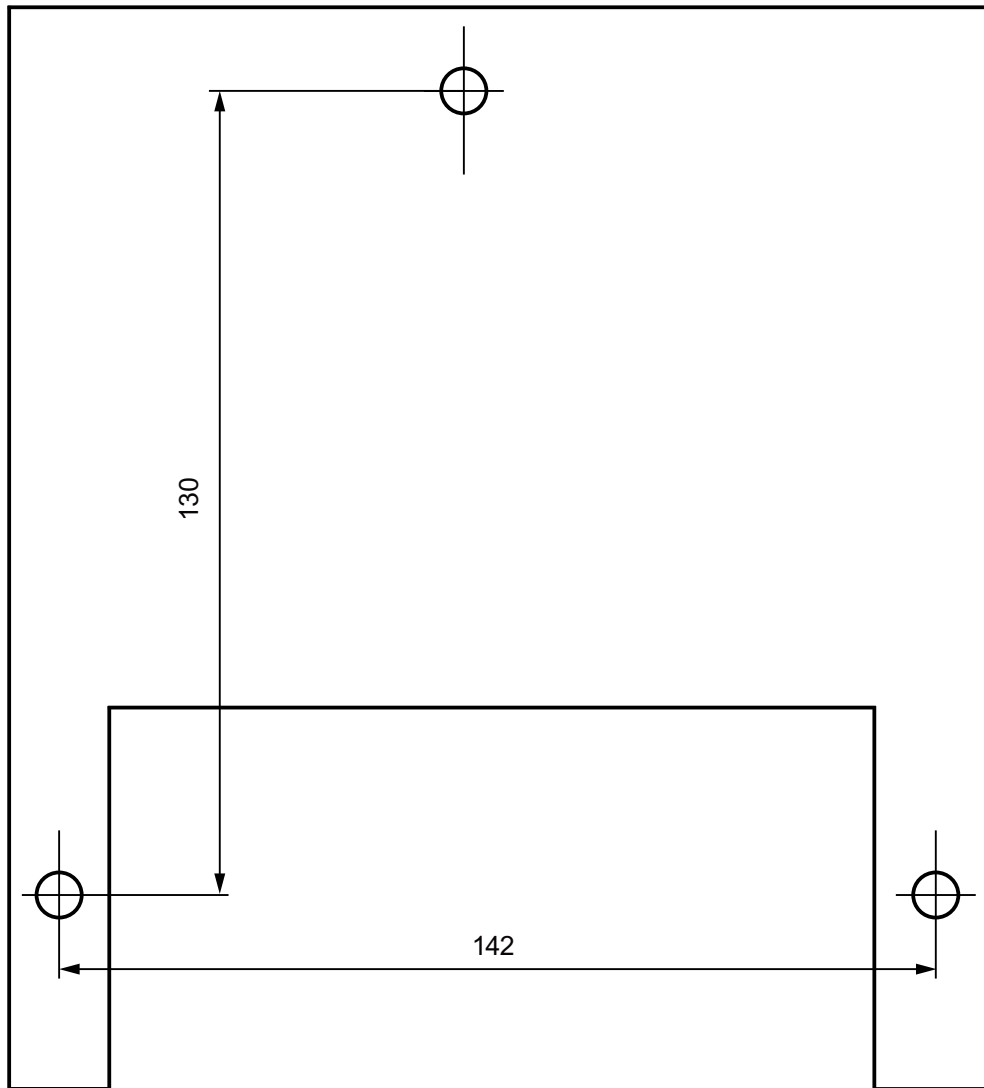


Figure 6-3 Drilling pattern - All dimensions specified in millimeters.

Installation with support - Ceiling installation

Follow the steps below to mount the device to the ceiling:

1. Use the mounting plate as template and draw the bore holes on the ceiling.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the mounting plate to the ceiling.
5. Install the device to the mounting plate using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Corner installation

Follow the steps below to mount the device to a corner:

1. Use the corner support as template and draw the bore holes on the corner.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the corner support to the corner.
5. Mount the device to the corner support using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Mast mounting

Follow the steps below to mount the device to a mast:

1. Use the mast mount as template and draw the bore holes on the mast.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Install the mast mount to the mast.
5. Install the device to the mast mount using the screws (M4). (Screws are not supplied with the device.)

Note

If drilling is not possible, you can also fasten the mast mount to the mast with cable ties, for example.

6.1.2.3 Ethernet

When installing and connecting the Ethernet connection, observe the applicable general conditions and their legal basis.

The Ethernet connection is connected to the Ethernet socket of the device. The cable must be connected to the RJ45 plug before connection to the socket.

For the supply voltage of the device over PoE, a corresponding infrastructure such as PoE injector or PoE switch is required.

6.1.2.4 Operation

The device is not suitable for operation in hazardous areas.

Operation of the system to EN 60950-1 is only safe when the housing cover is installed (cooling, fire protection, interference suppression).

In case of emergencies (e.g. when the enclosure is damaged, when liquids or foreign objects are entering the device), the device must be disconnected from the power supply and maintenance must be contacted immediately.

6.1.2.5 Cleaning and maintenance

The device may only be opened by suitably trained and qualified personnel. Only authorized dealers are permitted to repair the device.

Unauthorized opening of and improper repairs to the device may cause substantial risks to the user. As soon as the device was opened without permission, warranty and liability of the Siemens AG are rendered null and void.

Do not clean the enclosure with abrasive, alkaline or aggressive cleaning products or aids.

6.1.3 Technical specifications

Table 6-3 Technical specifications of the gateway RTLS4030G

6GT2701-5DB03	
Product name	SIMATIC RTLS4030G
PULSE radio frequencies	
Wireless method	IEEE 802.15.4-2011 UWB
Transmission speed	6.8 Mbps
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.001 ... 0.037 mW (-41.3 dBm/MHz)
Range	Max. 30 m
Accuracy of the localization	0.2 m
Antennas	Built-in UWB antenna
PHASE radio frequencies	
Wireless method	IEEE 802.15.4
Transmission speed	1 Mbps
Operating frequency rated value	2400 ... 2480 MHz
Transmit power	0.022 ... 100 mW
Range	Max. 500 m
Accuracy of the localization	1 m
Antennas	Built-in 2.4 GHz antenna
Bandwidth	2 MHz; data transmission at 802.15.4, channels selectable
Ethernet	
Ethernet	10/100 Mbit auto-detect
Duplex mode	Half or full duplex
DHCP	Yes
PoE	IEEE 802.3af Class 0, power rating 0.44 ... 12.94 W

6GT2701-5DB03

Supply voltage, power consumption

Supply voltage	8 ... 30 V DC
Rated voltage	24 V DC
Power consumption	9 W
Current consumption	0.38 A

Permitted ambient conditions

Ambient temperature	-15 ... +50 °C
---------------------	----------------

Design, dimensions, weights and connectors

Dimensions (L x W x H)	180 x 180 x 48 mm
Weight	Approx. 650 g
Degree of protection	IP65
Method of securing	Fixed mounting on walls or ceilings
Enclosure	Plastic enclosure (ASA and PC), UV resistant
Color	Titanium gray
Power plug	3-pin plug-in connector with screw-type terminal Bulgin Buceaneer® PX0412/03P
Ethernet	RJ45 Ethernet with PoE Amphenol LTW RCP-00AMMA-TLM7001

6.1.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mf=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33: Special conditions for ultra-wideband (UWB) devices
- EN 50121-3-2
Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Devices
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements

- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4030G (MLFB 6GT2701-5DB03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

6.1.4.1 UL**UL HAZ. LOC.**

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE**Validity only when the devices are labeled**

Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122

IND.CONT.EQ FOR HAZ.LOC.

CL.I, DIV.2, GP.C,D T4

CL.II, DIV.2, GP.F,G T80 °C

AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X

AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-15 °C < Tamb. < +50 °C

IP65

U_n = 24 V DC, 380 mA

The equipment also carries the following notes:

XXXYYYZZZ

[= serial number, is assigned during production]

6.2 SIMATIC RTLS4330G

6.2.1 Device description

6.2.1.1 Characteristics

SIMATIC RTLS4330G	Characteristics	
	Design	① Status indicators (LEDs) ② Connector for supply voltage and digital output ③ Ethernet port; Alternative power supply using Power over Ethernet (PoE)
	General	The device is the home location for localization in the RTLS localization system. It can be connected to the local IT infrastructure over Ethernet. This connection sets up an exchange between the node, the localization network and the localization server.
	Area of application	The device is suitable for use in damp environments.
	Supply voltage	The device can be operated with 8 to 30 V DC.

Note

For larger localization networks, we recommend installing multiple gateways to reduce the number of localizable transponders and increase the availability of position data.

6.2.1.2 Order data RTLS4330G

Table 6-4 Order data RTLS4330G

	Article number
SIMATIC RTLS4330G	6GT2701-5EB03

Table 6-5 Accessories order data (not included in scope of delivery)

	Article number
Power cable (Bulgin 400 Series Buccaneer® PX0410/03S) 3-pin, 5 m	6GT2791-2AH50
Bayonet connector (Amphenol RCP-00BMMS-TLM001) made of plastic for RJ45 connector for cable mounting (IP65) at gateway	6GT2790-0CB00

	Article number
Holder for ceiling suspension of anchor/gateway	6GT2790-0BE20
Holder for corner/mast mounting of anchor/gateway	6GT2790-0BE30

6.2.1.3 Pin assignment

Ethernet socket RJ45

The device may only be connected to the Ethernet via the plug-in connectors shown below.

When connecting the Ethernet cable, ensure that the twist-lock connectors are correctly secured.

Plug-in connector for power, digital output



3-pin plug-in connector Buccaneer® PX0412/03P

Connectors: SA3350/1

Sealing cover: PX0480



Pin	Description
N	Mains supply (red) 8 ... 30 V DC
L	Grounding terminal (black) GND (0 V)
I	Digital output (brown) Switched input voltage, max. current 200 mA

Connection socket Amphenol LTW RCP-5SPFFH-TCU7001

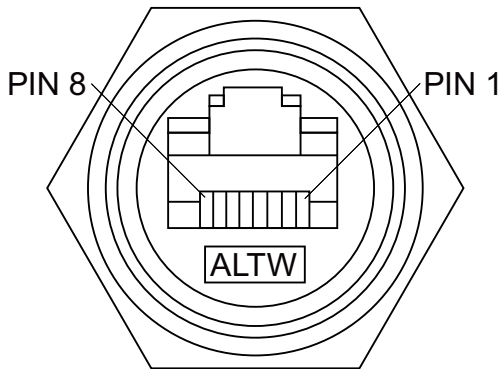












Figure 6-4 RJ45 connector Amphenol LTW PCP-00AMMA-TLM7001

6.2.1.4 LED status indicator

The operating states of the gateways are indicated by the LEDs. The states can be off , on  and flashing .

Display	Meaning
	POWER LED Lights up green when power is supplied to the device through the mains cable
	POWER LED Flashes red once per second when there is an undervoltage at the device
	RADIO LED Is off when the radio signal of the device to the RTLS localization system is inactive
	RADIO LED Flashes yellow when the radio signal of the device to the RTLS localization system is active
	LAN/SERVER LED Lights up blue when the device is connected to the network over LAN (Ethernet)
	LAN/SERVER LED Flashes blue once per second when the device is connected to the network but there is no connection to the RTLS localization server
	LAN/SERVER LED Is off when the device is not connected to the network

6.2.1.5 Dimension drawing

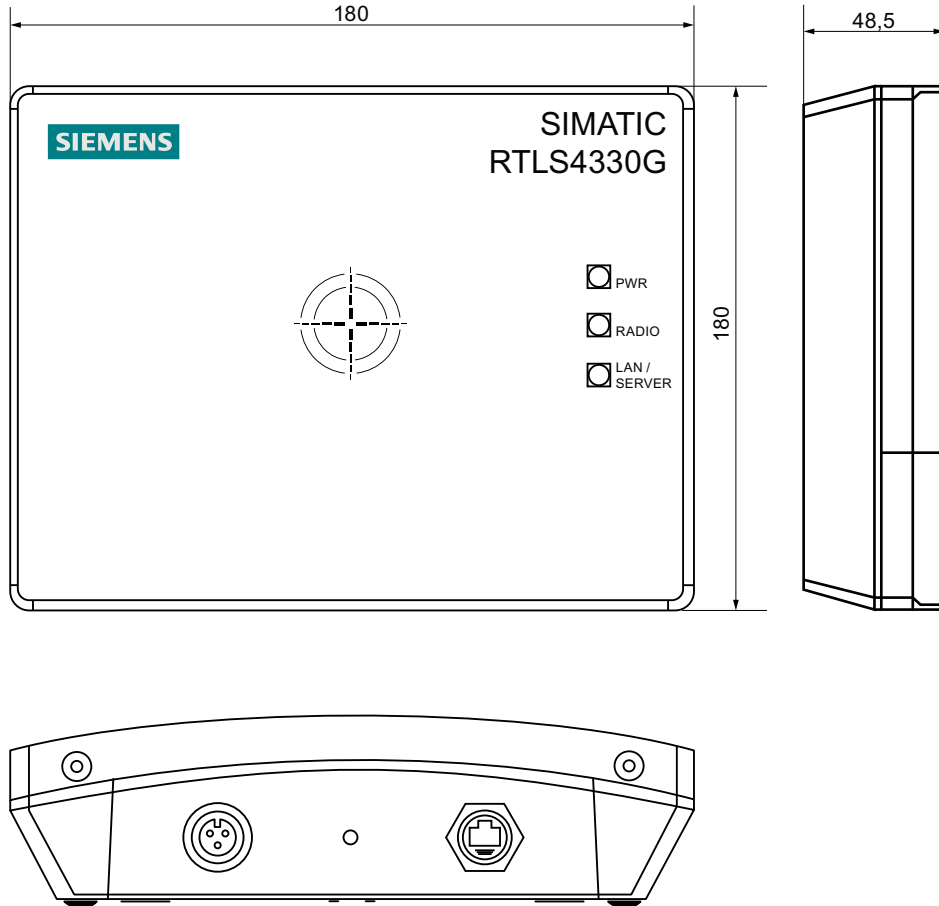


Figure 6-5 Dimension drawing SIMATIC RTLS4330G - All dimensions specified in millimeters

6.2.1.6 Troubleshooting

If a fault occurs, inspect the device for the following errors and take appropriate measures. If there are other undefined errors, please contact Siemens Support (<https://support.industry.siemens.com/cs/start?lc=en-US>).

Error detection	Cause of the error	Troubleshooting
Device does not respond, all LEDs are off	The device is not connected or the power supply unit is not switched on.	Check the supply voltage of the device.
The red LED (POWER) flashes once per second.	Undervoltage on the device	Check the supply voltage of the device.
The yellow LED (RADIO) is off.	Device is not connected to the Locating Manager.	Switch on Locating Manager.
The blue LED (LAN/SERVER) is off.	Device has no network connection (LAN)	Check local network, Check firewall
The blue LED (LAN/SERVER) is flashing.	Device is not connected to the Locating Manager.	Activate Locating Manager

6.2.2 Installation & Operation

6.2.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for fixed installation on walls or ceilings. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities. The devices must be installed so that they are accessible for future maintenance, e.g., for opening the enclosure cover.

Note the specifications in the section "Technical specifications" during installation and operation. Ensure that all screws are securely and firmly screwed into the wall / ceiling and can support the weight of the device and its wiring.

Make sure that the ambient temperature does not exceed 60 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the Twist-Lock connectors are inserted correctly to prevent moisture from entering the enclosure.

Make sure that the wiring is correct before you start up the device.

Only use the cables described in the manual, supplied with the device or otherwise prescribed. SIEMENS AG is not liable for damages or functional limitations caused by the use of other cables.


Protect the device from penetrating moisture by closing off connectors that are not in use with suitable covers. These covers are installed on the device.

Supply voltage

When the supply voltage is connected to the power plug, all LEDs flash briefly for a moment. The POWER LED lights up as soon as voltage is present.

The device can be supplied with power via the Ethernet cable. In this case, the power plug should be tightly sealed to prevent moisture from penetrating. Do not supply the device with power via the power input and PoE at the same time. The device is a class 0 device according to PoE.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications".

 CAUTION
Safety extra low voltage
The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)
This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

6.2.2.2 Installation options

Installation without holder

Follow the steps below to mount the device without holder to the wall:

1. Draw the bore holes on the wall according to the following drilling pattern.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the device to the wall using the screws (M4). (Screws are not supplied with the device.)

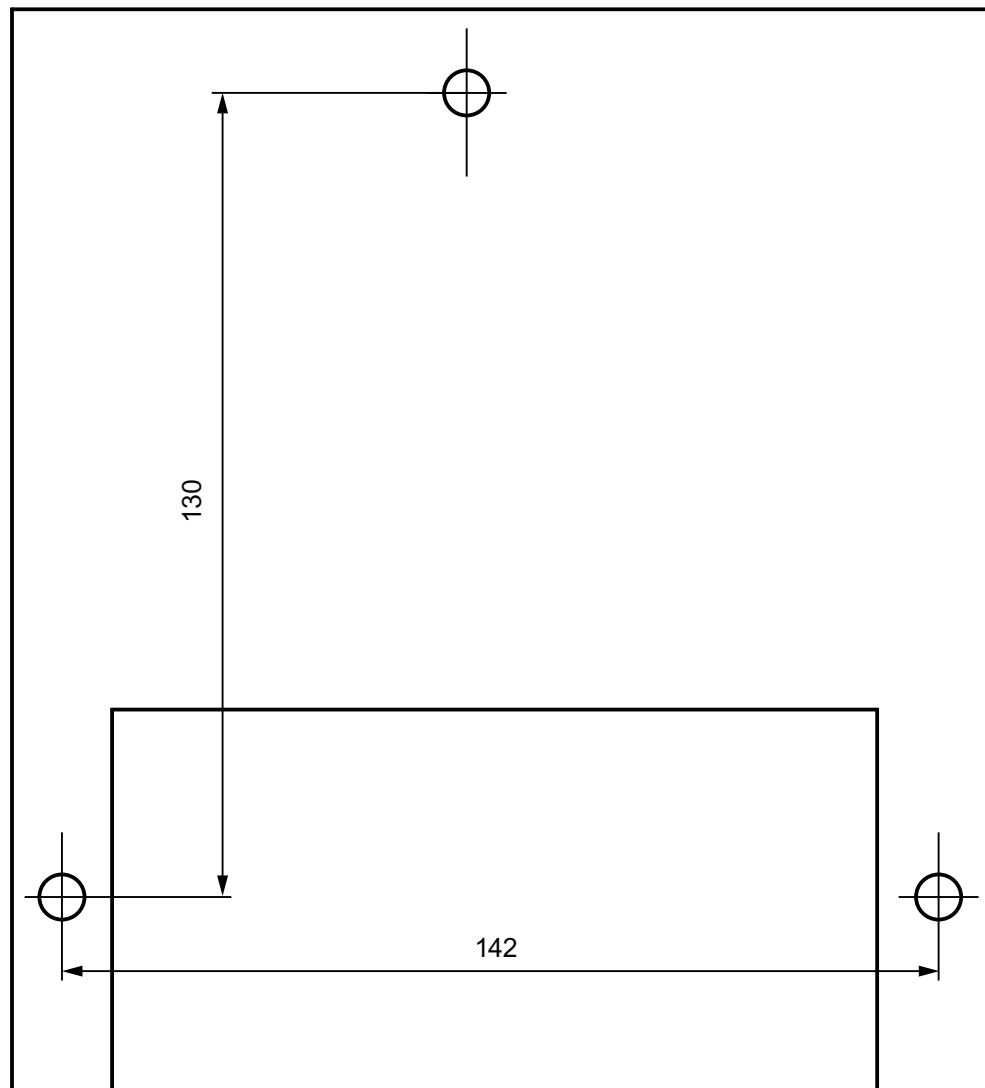


Figure 6-6 Drilling pattern - All dimensions specified in millimeters.

Installation with support - Ceiling installation

Follow the steps below to mount the device to the ceiling:

1. Use the mounting plate as template and draw the bore holes on the ceiling.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the mounting plate to the ceiling.
5. Install the device to the mounting plate using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Corner installation

Follow the steps below to mount the device to a corner:

1. Use the corner support as template and draw the bore holes on the corner.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the corner support to the corner.
5. Mount the device to the corner support using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Mast mounting

Follow the steps below to mount the device to a mast:

1. Use the mast mount as template and draw the bore holes on the mast.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Install the mast mount to the mast.
5. Install the device to the mast mount using the screws (M4). (Screws are not supplied with the device.)

Note

If drilling is not possible, you can also fasten the mast mount to the mast with cable ties, for example.

6.2.2.3 Ethernet

When installing and connecting the Ethernet connection, observe the applicable general conditions and their legal basis.

The Ethernet connection is connected to the Ethernet socket of the device. The cable must be connected to the RJ45 plug before connection to the socket.

For the supply voltage of the device over PoE, a corresponding infrastructure such as PoE injector or PoE switch is required.

6.2.2.4 Cleaning and maintenance

The device may only be opened by suitably trained and qualified personnel. Only authorized dealers are permitted to repair the device.

Unauthorized opening of and improper repairs to the device may cause substantial risks to the user. As soon as the device was opened without permission, warranty and liability of the Siemens AG are rendered null and void.

Do not clean the enclosure with abrasive, alkaline or aggressive cleaning products or aids.

6.2.3 Technical specifications

Table 6-6 Technical specifications of the gateway RTLS4330G

6GT2701-5EB03	
Product name	SIMATIC RTLS4330G
PULSE radio frequencies	
Wireless method	IEEE 802.15.4-2001 UWB
Transmission speed	6.8 Mbps
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.037 mW (-41.3 dBm/MHz)
Antenna	Built-in UWB antenna
CHIRP radio frequencies	
Wireless method	IEEE 802.15.4a
Transmission speed	1 Mbps
Operating frequency rated value	2.45 GHz ISM band
Transmit power	Max. 100 mW, can be set Min. 0.00025 mW, can be set
Antenna	Installed 2.4 GHz - antenna
Ethernet	
Ethernet	10/100 Mbit auto-detect
Duplex mode	Half or full duplex
DHCP	Yes
PoE	IEEE 802.3af Class 0, power rating 0.44 ... 12.94 W
Supply voltage, power consumption	
Supply voltage	8 ... 30 V DC
Rated voltage	24 V DC
Power consumption	9 W
Permitted ambient conditions	
Ambient temperature	-15 ... +50 °C
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	180 x 180 x 48 mm
Weight	Approx. 650 g

6GT2701-5EB03	
Degree of protection	IP65
Method of securing	Fixed mounting on walls or ceilings
Enclosure	Plastic enclosure (ASA and PC)
Power plug	3-pin plug-in connector with screw-type terminal Bulgin Buceaneer® PX0412/03P
Ethernet	RJ45 Ethernet with PoE, Amphenol LTW PCP-00AMMA-TLM7001

6.2.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mf=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33:
Special conditions for ultra-wideband (UWB) devices
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4330G (MLFB 6GT2701-5EB03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

6.2.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-15 °C < Tamb. < +50 °C

IP65

U_n = 24 V DC, XX mA

The equipment also carries the following notes:

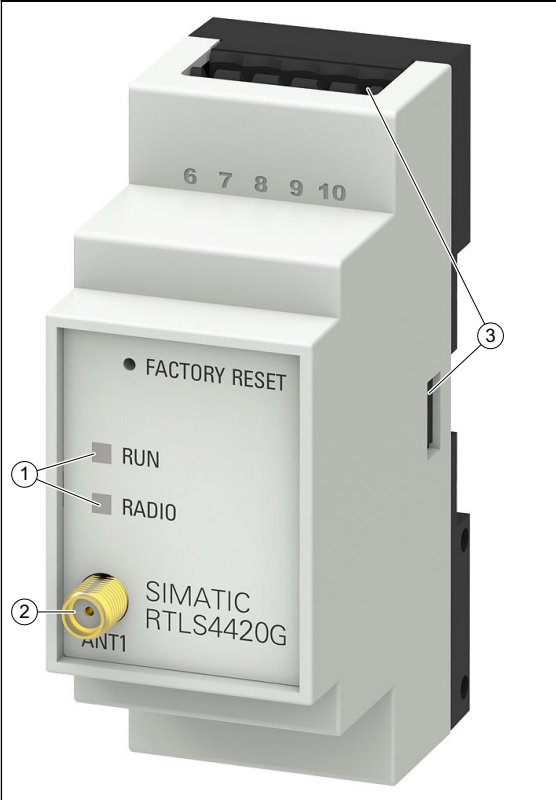
XXXYYYZZZ

[= serial number, is assigned during production]

6.3 SIMATIC RTLS4420G

6.3.1 Device description

6.3.1.1 Characteristics

SIMATIC RTLS4420G	Characteristics	
	Design	① Status indicators (LEDs) ② Antenna connector for RP SMA antenna ③ Connector for supply voltage and digital outputs
	General	The device is the home location for localization in the RTLS localization system. It can be connected to the local IT infrastructure over Ethernet. This connection sets up an exchange between the node, the localization network and the localization server.
	Area of application	
	Supply voltage	The device can be operated with 8 to 30 V DC.

Note

For larger localization networks, we recommend installing multiple gateways to reduce the number of localizable transponders and increase the availability of position data.

6.3.1.2 Order data RTLS4420G

Table 6-7 Order data RTLS4420G

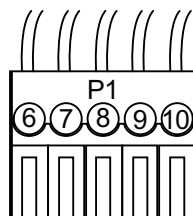
	Article number
SIMATIC RTLS4420G including power plug (5-pin)	6GT2701-2CB02

Table 6-8 Accessories order data (not included in scope of delivery)

	Article number
Antenna with N-M connector 4.5 dBi	6GT2706-0BA00
IWLAN antenna ANT795-6MN	6GK5795-6MN10-0AA6
Mounting kit for ANT795-6MN including mounting aid, angle adapter, N-Connect Fixing screws, Compact instructions	6GK5795-6MN01-0AA6
Flexible connecting cable (e.g. for connecting an antenna to an access point)	
1 m	6XV1875-5CH10
2 m	6XV1875-5CH20
5 m	6XV1875-5CH50
HF coupler for connecting two RCoax cables	6GK5798-0CP00-1AA0
TP cable 4 x 2 with 2 RJ45 connectors	
1 m	6XV1870-3QH10
3 m	6XV1870-3QH30
6 m	6XV1870-3QH60
10 m	6XV1870-3QN10
20 m	6XV1870-3QN20
25 m	6XV1870-3QN25
50 m	6XV1870-3QN50

6.3.1.3 Pin assignment

P1 - Power



5-pin connector with screw terminals

0.13 mm² to 3.3 mm²

Pin	Description
6	Digital output
7	GND (ground)
8	GND (ground)

Pin	Description
9	Supply voltage
10	Ethernet shield

Digital output - Connector 6



A high-side switch switches the power supply to the digital output (pin 6).

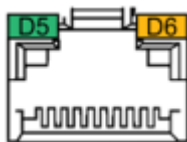
Output voltage: 0 (switched off) or input voltage (switched on)

Maximum output current: 100 mA

P2 - Antenna - RP-SMA plug-in connector

Pin	Description
1	Antenna
Shield	GND, shield

P2 - RJ45 Ethernet






Pin	Description
1	Differential Ethernet transmit data +
2	Differential Ethernet transmit data -
3	Differential Ethernet receive data +




Pin	Description
6	Differential Ethernet receive data -
4, 5, 7, 8	Not connected
Shield	Grounding




D5	Description
Off	No connection
Yellow	10 MBit
Green	100 MBit

D6	Description
Off	No activity
Yellow	Half duplex activity
Green	Full duplex activity

6.3.1.4 LED status indicator

The operating states of the gateways are indicated by the LEDs. The states can be off , on , and flashing .

RADIO LED (D1)	Meaning
	Is off when the device is inactive
	Flashes regularly in yellow when an error is indicated
	Flashes yellow when the WLS radio of the device is active

RUN LED (D2)	Meaning
	Is off when the device is inactive
	Flashes regularly in green when an error is indicated
	Is on when the device is in operation.

6.3.1.5 Dimension drawing

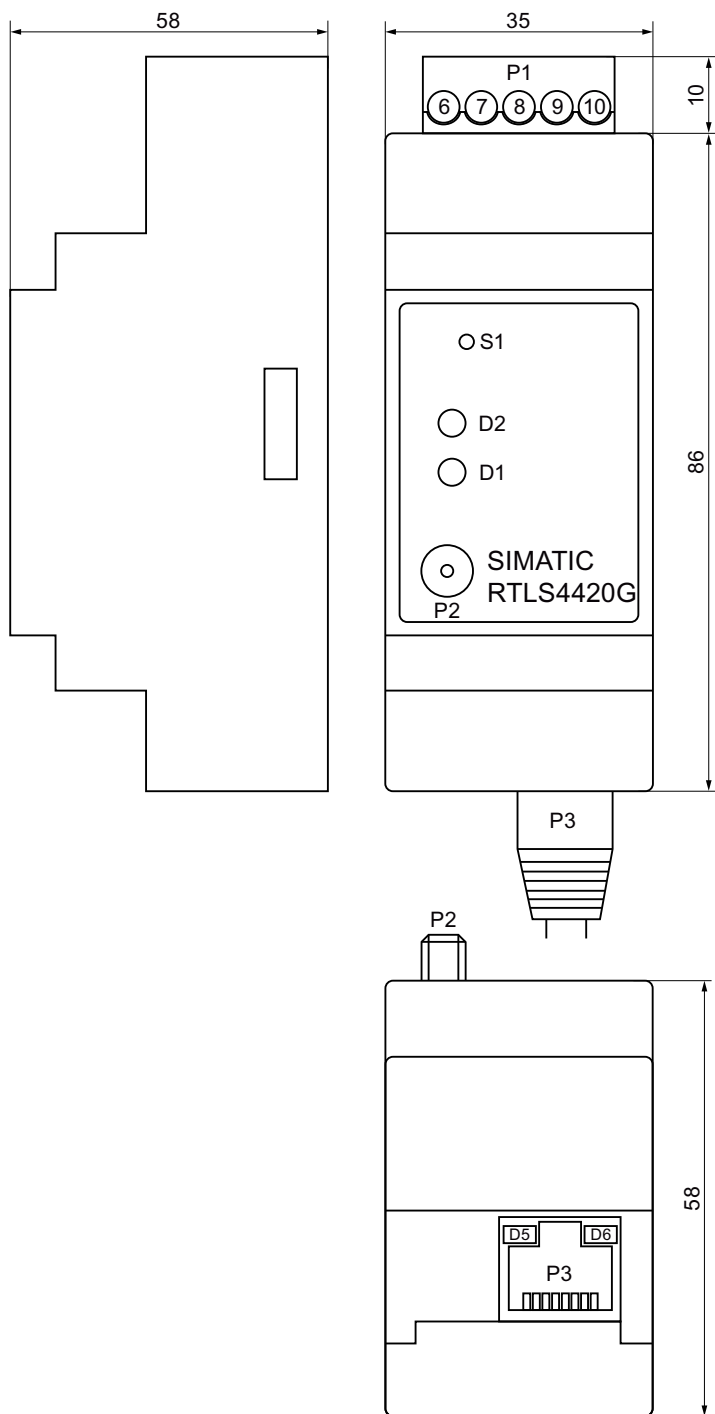


Figure 6-7 Dimension drawing SIMATIC RTLS4420G - All dimensions specified in millimeters

6.3.1.6 Troubleshooting

Error detection	Cause of the error	Troubleshooting
Device does not respond, all LEDs are off	Device is not connected or not switched on	Check the supply voltage of the device, switch on device
The green LED (RUN) flashes during operation.	Error in the device	Reset by switching the device off and on again; if the error occurs again, contact SIEMENS Service.

6.3.2 Installation & Operation

6.3.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for installation on a DIN rail in a cabinet or on walls or ceilings. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities. The devices must be installed so that they are accessible for future maintenance, e.g., for opening the enclosure cover.

Note the specifications in the section "Technical specifications" during installation and operation. Protect the device against moisture.

Make sure that the ambient temperature does not exceed 70 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the wiring is correct before you start up the device.

Connection of the antenna

Connect the antenna to the RP SMA connection (P2). The device must not be operated without an antenna. The device must be turned off or disconnected from the power to change or remove the antenna.

The antennas of all wireless devices must be equally aligned. The antenna must be connected as far up as possible and be in the line of sight of the possible transponder positions.

Supply voltage

When the supply voltage is connected to the power plug, all LEDs flash briefly for a moment. The Power LED is on as soon as voltage is present.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications".

⚠ CAUTION

Safety extra low voltage

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)

This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

6.3.2.2 Ethernet

When installing and connecting the Ethernet connection, observe the applicable general conditions and their legal basis.

The Ethernet connection is connected to the Ethernet socket of the device. The cable must be connected to the RJ45 plug before connection to the socket.

6.3.3 Technical specifications

Table 6-9 Technical specifications of the gateway RTLS4420G

6GT2701-2CB02	
Product name	SIMATIC RTLS4420G
Wireless frequencies	
Wireless method	IEEE 802.15.4a nanoLOC - Chirp Spread Spectrum (CSS)
Transmission speed	1 Mbps
Operating frequency	2400 ... 2480 MHz
Operating frequency rated value	2.45 GHz ISM band
Transmit power	0.00025 ... 100 mW
Range	Max. 1000 m
Accuracy of the localization	1.5 m
Chirp bandwidth	80 MHz
Range with 1 Mb	Inside maximum 90 m Outside maximum 1000 m (typical 500 m)
Ethernet	
Interfaces	10/100 MBit

6GT2701-2CB02

Duplex mode	Half and full duplex
Supply voltage, power consumption	
Supply voltage	8 ... 30 V DC
Rated voltage	24 V DC
Power consumption	Max. 1.6 W
Current consumption	0.2 A
Digital inputs and outputs	
Output	High-side switch → Connect to input voltage
Output current	Max. 100 mA, short-circuit proof
Output voltage	0 V or supply voltage
Permitted ambient conditions	
Ambient temperature	-40 ... +70 °C
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	35 x 86 x 58 mm
Weight	80 g
Degree of protection	IP40
Method of securing	DIN standard mounting rail 60 715 TH35
Enclosure	Plastic housing
Color	Light gray
Power plug (P1)	5-pin connector with screw terminal, 0,13 mm ² ... 3.3 mm ²
Ethernet	RJ45 Ethernet (10/100 MBit)
Antenna connector	RP SMA screw connector

6.3.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mf=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement

- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4420G (MLFB 6GT2701-2CB02); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and

can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

6.3.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE

Validity only when the devices are labeled

Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-40 °C < Tamb. < +70 °C

IP40

$U_n = 24 \text{ V DC}, 200 \text{ mA}$

The equipment also carries the following notes:

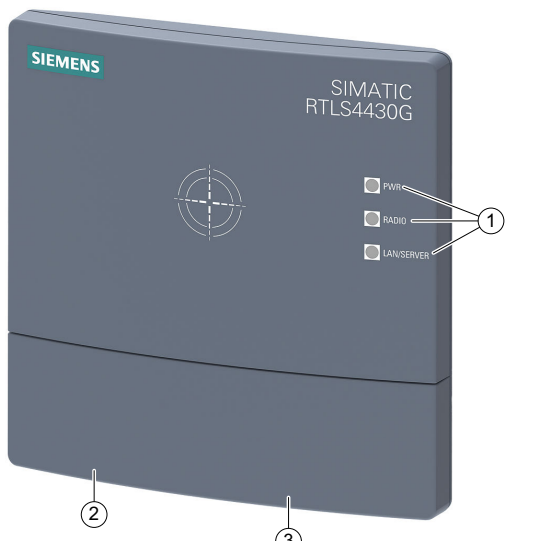
XXXYYYZZZ

[= serial number, is assigned during production]

6.4 SIMATIC RTLS4430G

6.4.1 Device description

6.4.1.1 Characteristics

SIMATIC RTLS4430G	Characteristics	
	Design	① Status indicators (LEDs) ② Connector for power supply ③ Ethernet port; Alternative power supply using Power over Ethernet (PoE)
	General	The device is the home location for localization in the RTLS localization system. It can be connected to the local IT infrastructure over Ethernet. This connection sets up an exchange between the node, the localization network and the localization server.
	Area of application	The device is suitable for use in damp environments.
	Supply voltage	The device can be operated with 8 to 30 V DC.

6.4.1.2 Order data RTLS4430G

Table 6-10 Order data RTLS4430G

	Article number
SIMATIC RTLS4430G	6GT2701-5CB02
SIMATIC RTLS4430G specially based for CD	6GT2701-5CB02-0AX0

Table 6-11 Accessories order data (not included in scope of delivery)

	Article number
Power cable (Bulgin 400 Series Buccaneer® PX0410/03S) 3-pin, 5 m	6GT2791-2AH50
Bayonet connector (Amphenol RCP-00BMMS-TLM7001) made of plastic for RJ45 connector for cable mounting	6GT2790-0CB00
Holder for ceiling suspension of anchor/gateway	6GT2790-0BE20
Holder for corner/mast mounting of anchor/gateway	6GT2790-0BE30
Connecting cable for connection to wide-range power supply unit for anchor / gateway 5 m	6GT2791-2PH50
TP cable 4 x 2 with 2 RJ45 connectors	
1 m	6XV1870-3QH10
3 m	6XV1870-3QH30
6 m	6XV1870-3QH60
10 m	6XV1870-3QN10
20 m	6XV1870-3QN20
25 m	6XV1870-3QN25
50 m	6XV1870-3QN50

6.4.1.3 Pin assignment

Ethernet socket RJ45

The device may only be connected to the Ethernet via the connectors shown here. When connecting the Ethernet cable, make sure that it is closed correctly.

Plug-in connector for power, digital output



3-pin plug-in connector Buccaneer® PX0412/03P

Connectors: SA3350/1

Sealing cover: PX0480



Pin	Description
N	Mains supply (red) 8 ... 30 V DC
L	Grounding terminal (black) GND (0 V)
I	Digital output (brown) Switched input voltage, max. current 200 mA

Connector Amphenol LTW RCP-5SPFFH-TCU7001

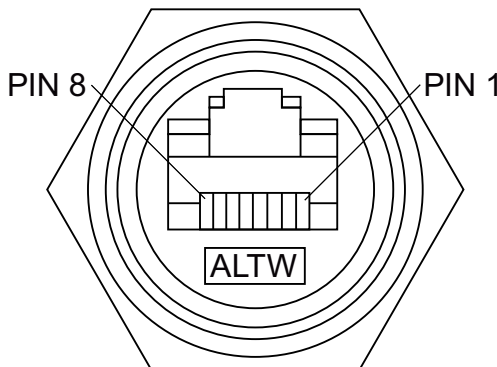












Figure 6-8 RJ45 connector Amphenol LTW PCP-00AMMA-TLM7001

6.4.1.4 LED status indicator

The operating states of the gateways are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	POWER LED Lights up green when power is supplied to the device through the mains cable
	POWER LED Flashes red once per second when there is an undervoltage at the device
	RADIO LED Is off when the radio signal of the device to the RTLS localization system is inactive
	RADIO LED Flashes yellow when the radio signal of the device to the RTLS localization system is active
	LAN/SERVER LED Lights up blue when the device is connected to the network over LAN (Ethernet)

LED	Meaning
	LAN/SERVER LED Flashes blue once per second when the device is connected to the network but there is no connection to the RTLS localization server
	LAN/SERVER LED Is off when the device is not connected to the network

6.4.1.5 Dimension drawing

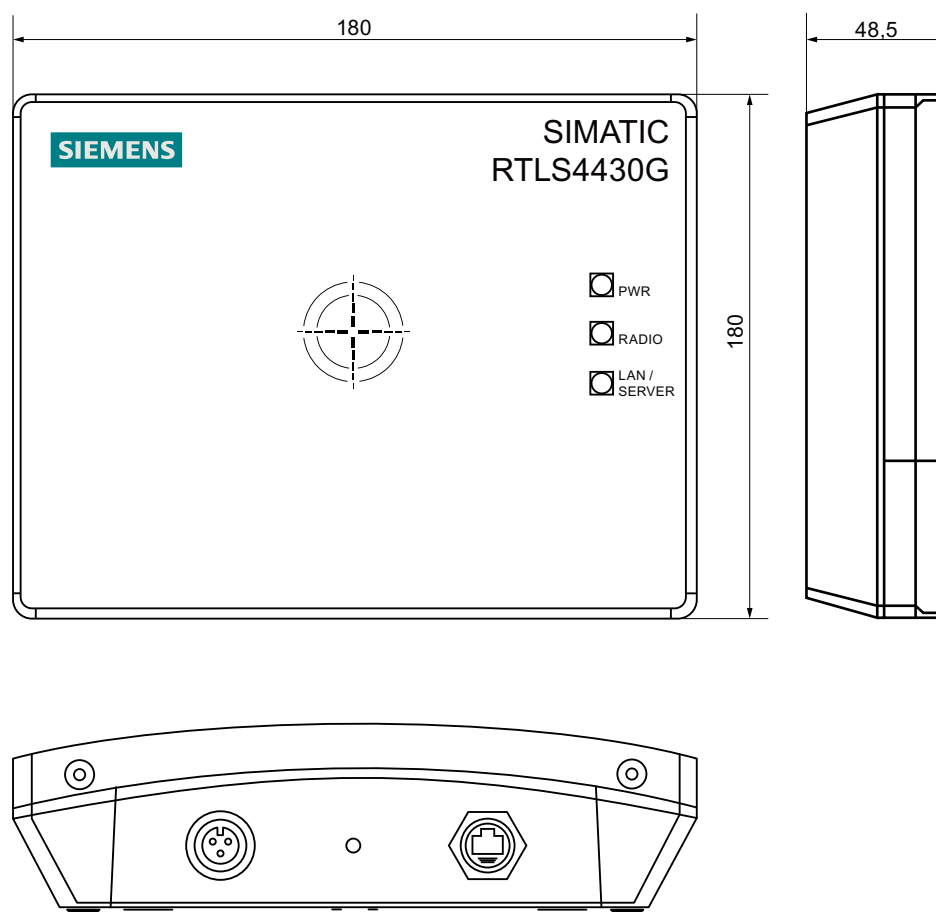


Figure 6-9 Dimension drawing SIMATIC RTLS4430G - All dimensions specified in millimeters

6.4.1.6 Troubleshooting

Error detection	Cause of the error	Troubleshooting
Device does not respond, all LEDs are off	The device is not connected or the power supply unit is not switched on.	Check the supply voltage of the device.
The red LED (POWER) flashes once per second.	Undervoltage on the device	Check the supply voltage of the device.

Error detection	Cause of the error	Troubleshooting
The yellow LED (RADIO) is off.	Device is not connected to the Locating Manager.	Switch on Locating Manager.
The blue LED (LAN/SERVER) is off.	Device has no network connection (LAN)	Check local network, check firewall
The blue LED (LAN/SERVER) is flashing.	Device is not connected to the Locating Manager.	Activate Locating Manager

6.4.2 Installation & Operation

6.4.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for fixed installation on walls or ceilings. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities. The devices must be installed so that they are accessible for future maintenance, e.g., for opening the enclosure cover.

Note the specifications in the section "Technical specifications" during installation and operation. Ensure that all screws are securely and firmly screwed into the wall / ceiling and can support the weight of the device and its wiring.

Make sure that the ambient temperature does not exceed 60 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the Twist-Lock connectors are inserted correctly to prevent moisture from entering the enclosure.

Make sure that the wiring is correct before you start up the device.

Only use the cables described in the manual, supplied with the device or otherwise prescribed. SIEMENS AG is not liable for damages or functional limitations caused by the use of other cables.

Protect the device from penetrating moisture by closing off connectors that are not in use with suitable covers. These covers are installed on the device.

Supply voltage

When the supply voltage is connected to the power plug, all LEDs flash briefly for a moment. The POWER LED lights up as soon as voltage is present.

The device can be supplied with power via the Ethernet cable. In this case, the power plug should be tightly sealed to prevent moisture from penetrating. Do not supply the device with power via the power input and PoE at the same time. The device is a class 0 device according to PoE.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications".

**CAUTION****Safety extra low voltage**

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)

This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

6.4.2.2 Installation options

Installation without holder

Follow the steps below to mount the device without holder to the wall:

1. Draw the bore holes on the wall according to the following drilling pattern.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the device to the wall using the screws (M4). (Screws are not supplied with the device.)

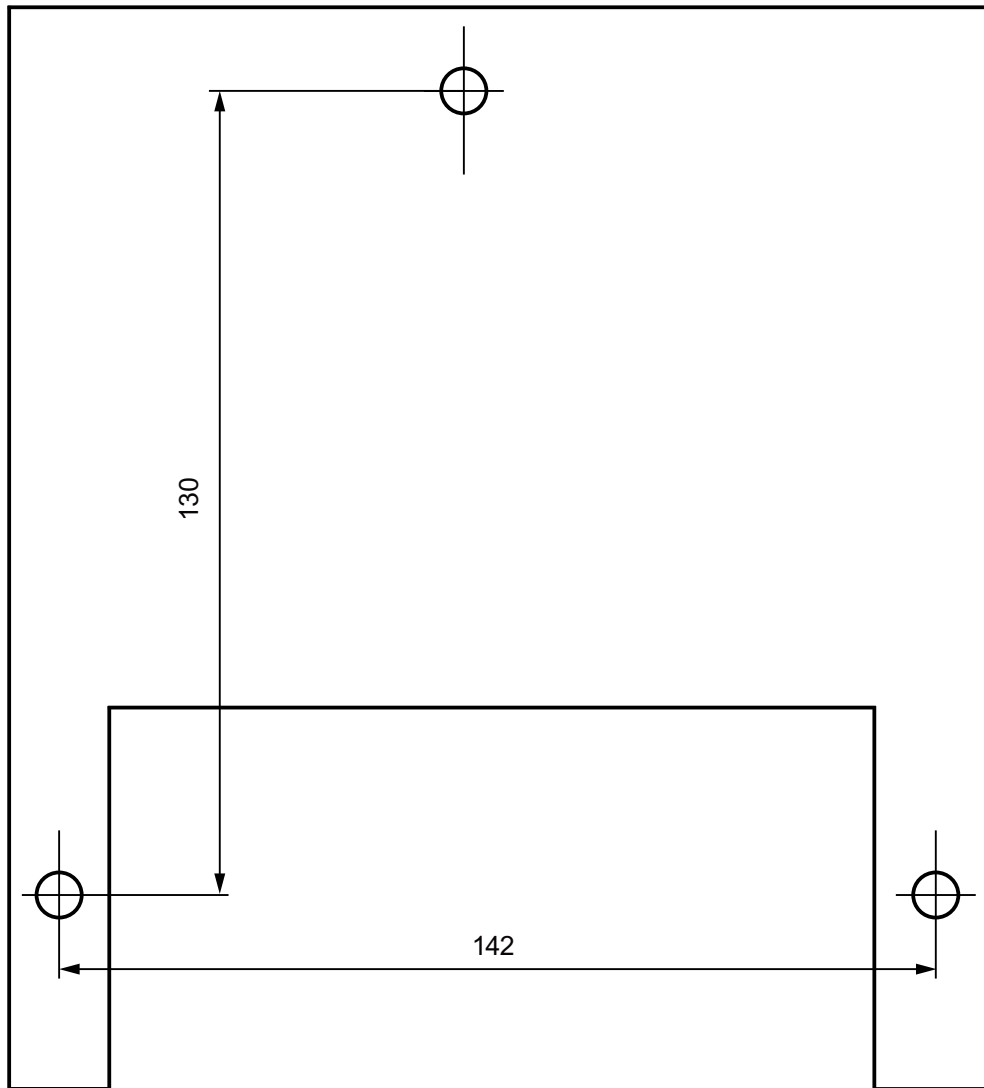


Figure 6-10 Drilling pattern - All dimensions specified in millimeters.

Installation with support - Ceiling installation

Follow the steps below to mount the device to the ceiling:

1. Use the mounting plate as template and draw the bore holes on the ceiling.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the mounting plate to the ceiling.
5. Install the device to the mounting plate using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Corner installation

Follow the steps below to mount the device to a corner:

1. Use the corner support as template and draw the bore holes on the corner.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Mount the corner support to the corner.
5. Mount the device to the corner support using the screws (M4). (Screws are not supplied with the device.)

Installation with support - Mast mounting

Follow the steps below to mount the device to a mast:

1. Use the mast mount as template and draw the bore holes on the mast.
2. Drill the holes with a suitable device.
3. Insert the matching anchors in the holes. (Anchors are not supplied with the device.)
4. Install the mast mount to the mast.
5. Install the device to the mast mount using the screws (M4). (Screws are not supplied with the device.)

Note

If drilling is not possible, you can also fasten the mast mount to the mast with cable ties, for example.

6.4.2.3 Ethernet

When installing and connecting the Ethernet connection, observe the applicable general conditions and their legal basis.

The Ethernet connection is connected to the Ethernet socket of the device. The cable must be connected to the RJ45 plug before connection to the socket.

For the supply voltage of the device over PoE, a corresponding infrastructure such as PoE injector or PoE switch is required.

6.4.2.4 Operation

The device is not suitable for operation in hazardous areas.

Operation of the system to EN 60950-1 is only safe when the housing cover is installed (cooling, fire protection, interference suppression).

In case of emergencies (e.g. when the enclosure is damaged, when liquids or foreign objects are entering the device), the device must be disconnected from the power supply and maintenance must be contacted immediately.

A gateway is ready for operation when both the upper green LED and the lower blue LED light up permanently. The third (middle) LED plays no role in operational readiness.

6.4.2.5 Cleaning and maintenance

The device may only be opened by suitably trained and qualified personnel. Only authorized dealers are permitted to repair the device.

Unauthorized opening of and improper repairs to the device may cause substantial risks to the user. As soon as the device was opened without permission, warranty and liability of the Siemens AG are rendered null and void.

Do not clean the enclosure with abrasive, alkaline or aggressive cleaning products or aids.

6.4.3 Technical specifications

Table 6-12 Technical specifications of the gateway RTLS4430G

		6GT2701-5CB02 6GT2701-5CB02-0AX0
Product name	SIMATIC RTLS4430G	
Wireless frequencies		
Wireless method	IEEE 802.15.4a	
Transmission speed	1 Mbps	
Operating frequency	2400 ... 2480 MHz	
Operating frequency rated value	2.45 GHz ISM band	
Transmit power	0.00025 ... 100 mW	
Range	Max. 1000 m	
Accuracy of the localization	1.5 m	
Antennas	Built-in 2.4 GHz antenna	
Ethernet		
Ethernet	10/100 Mbit auto-detect	
Duplex mode	Half or full duplex	
DHCP	Yes	
PoE	IEEE 802.3af class 0, Power rating 0.44 ... 12.94 W	
Supply voltage, power consumption		
Supply voltage	8 ... 30 V DC	
Rated voltage	24 V DC	
Power consumption	Max. 5 W	
Current consumption	Max. 0.63 A	

6GT2701-5CB02

6GT2701-5CB02-0AX0

Permitted ambient conditions

Ambient temperature	-40 to +60 °C
---------------------	---------------

Design, dimensions, weights and connectors

Dimensions (L x W x H)	180 x 180 x 48 mm
Weight	Approx. 650 g
Degree of protection	IP65
Method of securing	Fixed mounting on walls or ceilings 3 x M4 screws
Enclosure	Plastic enclosure (ASA and PC), UV resistant
Color	Titanium gray
Power plug	3-pin plug-in connector with screw-type terminal Bulgin Buceaneer® PX0412/03P
Ethernet	RJ45 Ethernet with PoE, Amphenol LTW RCP-00AMMA-TLM7001

6.4.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4430G (MLFB 6GT2701-5CB02); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) L'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

6.4.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-40 °C < Tamb. < +60 °C

IP65

U_n = 24 V DC, 630 mA

The equipment also carries the following notes:

XXXYYYZZZ


[= serial number, is assigned during production]

Transponder

7.1 SIMATIC RTLS4030T

7.1.1 Device description

7.1.1.1 Characteristics




SIMATIC RTLS4030T	Characteristics	
	Design	
	General	The transponder is the mobile device for localization in the RTLS localization system. It sends position data to anchors and gateways which transmit the data to the localization server.
	Area of application	The device is designed for an operating temperature of -10 ... +50 °C. The device is protected from water spray on all sides (IP54).
	Supply voltage	The device is supplied with voltage by a replaceable battery.



7.1.1.2 Order data RTLS4030T

Table 7-1 Order data RTLS4030T

	Article number
SIMATIC RTLS4030T including 1 x battery VARTA CR123A	6GT2700-3DA03

7.1.1.3 LED status indicator

The operating states of the transponder are indicated by the LEDs. The states can be off , on  and flashing .

LED (green)	Meaning
	Flashes green briefly when the device is ready for operation.
	Flashes green permanently when the device is moved.

7.1.1.4 Dimension drawing

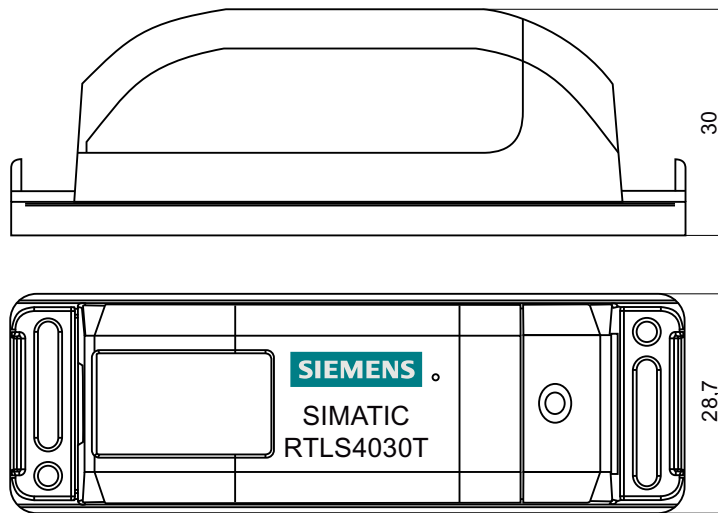


Figure 7-1 Dimension drawing SIMATIC RTLS4030T - All dimensions specified in millimeters

7.1.2 Installation & Operation

7.1.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

Mount the device so that it has a direct line-of-sight connection to the anchors/gateways (360° panorama view). Any type of material can impact localization. Localization through metal is not possible. Localization through radio reflections is possible in this case which results in an inaccurate localization.

Check the device for damages before you use it so that it is not damaged during operation. The specified operating temperature ranges must be observed.

The device contains a lithium battery.

 **CAUTION**

Fires and burns

Improper handling of batteries can lead result in fires and burns.

The housing of the device must not be squashed, punctured or exposed to other mechanical influences. It may only be opened to change batteries.

Never expose the device to fire, temperatures above 50 °C or direct sunlight for an extended period of time.

In dry environments the device battery must be replaced.

Assembling the transponder prior to starting up

Proceed as follows to assemble the transponder prior to starting up:

1. Insert the battery in the battery compartment according to the polarity direction.
2. Close the housing by first placing the top part into the bottom housing and letting it engage on the bottom.

Note

Remove the batteries from the device when you are returning it.

Replacing the battery

Proceed as follows to replace the battery in the transponder:

Make sure that you observe the polarity of the batteries (marking on the battery insert).

1. Open the housing at the designated recess on the left-hand side in an upwards direction using a suitable tool.
2. Insert the battery in the battery compartment according to the polarity direction.
3. Close the housing again until you hear it click into place.

7.1.2.2 Cleaning and maintenance

The enclosure may only be opened to change batteries.

The device may only be repaired by an authorized maintenance company or opened for other types of work.

Improper opening or repairing of the device may result in risks for the user. Opening the device without permission renders the warranty of the Siemens AG null and void.

Do not clean the enclosure with liquids or abrasive, caustic or flammable cleaning products.

7.1.3 Technical specifications

Table 7-2 Technical specifications of the transponder RTLS4030T

6GT2700-3DA03	
Product name	SIMATIC RTLS4030T
PULSE radio frequencies (localization)	
Wireless method	IEEE 802.15.4-2011 UWB
Transmission speed	6.8 Mbps
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.037 mW (-41.3 dBm/MHz)
Range	Max. 30 m
Accuracy of the localization	0.2 m
Antennas	Built-in UWB antenna
PHASE radio frequencies (communication and optional localization)	
Wireless method	IEEE 802.15.4
Transmission speed	1 Mbps
Operating frequency rated value	2400 ... 2480 MHz
Transmit power	Max. 4 dBm (can be set)
Range	Max. 50 m
Accuracy of the localization	1 m
Antennas	2.4 GHz antenna (integrated)
Bandwidth	2 MHz; data transmission over 802.15.4 channels (adjustable)
Supply voltage, power consumption	
Supply voltage	VARTA CR123A battery
Service life (at 20 °C)	Standby: 1 year Operation: 100% UWB localization with 1 s: 6 months
Permitted ambient conditions	
Ambient temperature	-10 to +50 °C
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	Approx. 89 x 29 x 30 mm
Weight	Approx. 90 g (including battery)
Degree of protection	IP54

6GT2700-3DA03

Method of securing	2 x M5 screws or cable ties
Enclosure	Plastic housing
Color	Anthracite

7.1.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mf=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33:
Special conditions for ultra-wideband (UWB) devices
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4030T (MLFB 6GT2700-3DA03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.1.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-10 °C < Tamb. < +50 °C

IP54

U_n = XX V DC, XX mA

The equipment also carries the following notes:


XXXYYYYZZZ

[= serial number, is assigned during production]

7.2 SIMATIC RTLS4060T

7.2.1 Device description

7.2.1.1 Characteristics

SIMATIC RTLS4060T	Characteristics	
	Design	
	General	<p>The transponder is the mobile device for localization in the RTLS localization system. It sends position data to anchors and gateways which transmit the data to the localization server.</p> <p>The device is suitable for installation in vehicles and other devices and is connected to the supply voltage there.</p>
	Area of application	
	Supply voltage	The device can be operated with 10 to 30 V DC.

7.2.1.2 Order data RTLS4060T

Table 7-3 Order data RTLS4060T

	Article number
SIMATIC RTLS4060T	6GT2700-6DE03

Table 7-4 Accessories order data (not included in scope of delivery)

	Article number
Connecting cable	6GT2791-1AH30

7.2.1.3 Pin assignment

Plug-in connector for power, digital output

8-pin plug-in connector – 3 m cable with socket (article number 6GT2791-1AH30)

Pin	Description	Color of the cable core
1	+ 24 V DC	Red
2	GND (0 V)	Black
3	Digital output	Brown

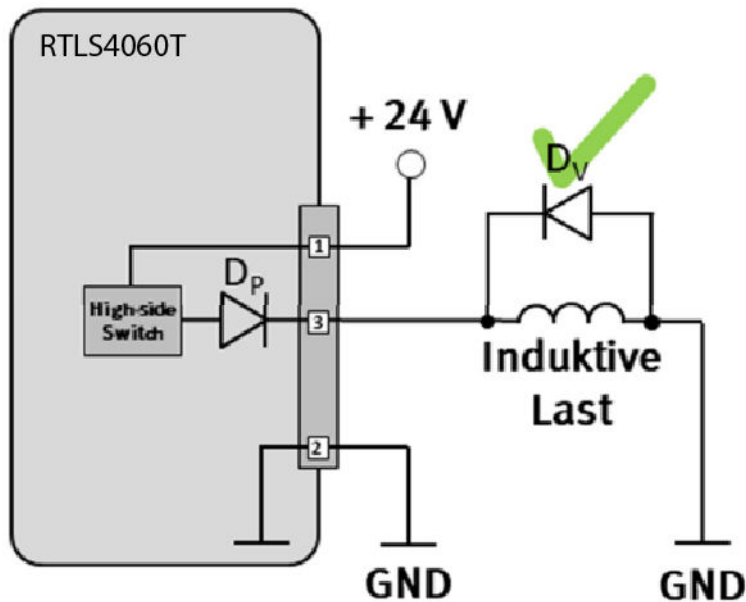
Pin	Description	Color of the cable core
4	Digital input 2	Orange
5	Digital input 1	Yellow
6	CAN L	Green
7	CAN H	Blue
8	Not used	Violet

Digital output

Both digital device outputs can switch resistive, capacitive and inductive loads. The current is automatically limited to these functions.

The following must be observed for inductive loads (e.g. relays): Inductivities up to 32 H can be switched off without freewheeling diode D_V . A freewheeling diode D_V is required for higher inductivities.

If a freewheeling diode D_V is used, an additional polarity protection diode D_P must be inserted.



Digital input

The device has 2 digital inputs. Each has a range from 0 to 24 V with an impedance of 4.7 kOhm.

7.2.1.4 Dimension drawing

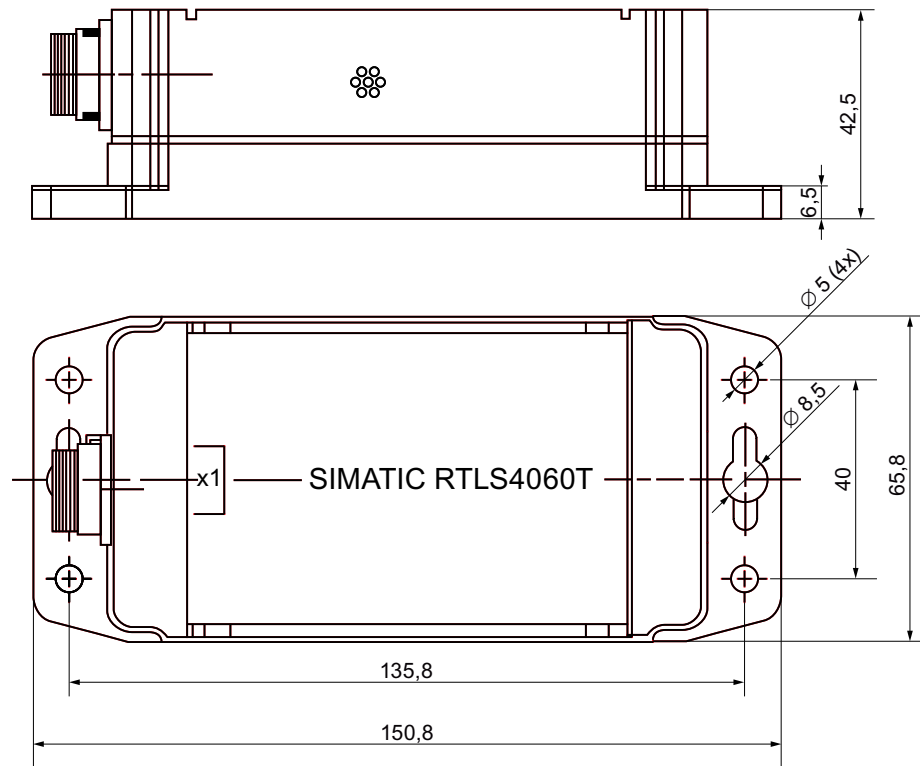


Figure 7-2 Dimension drawing SIMATIC RTLS4060T - All dimensions specified in millimeters

7.2.2 Installation & Operation

7.2.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for installation in a vehicle. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities.

Note the specifications in the section "Technical specifications" during installation and operation.

Make sure that the ambient temperature does not exceed 50 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the wiring is correct before you start up the device.

Supply voltage



CAUTION

Safety extra low voltage

The equipment is designed for operation with Safety Extra-Low Voltage (SELV) by a Limited Power Source (LPS). (This does not apply to 100 V...240 V devices.)

This means that only SELV / LPS complying with IEC 60950-1 / EN 60950-1 / VDE 0805-1 must be connected to the power supply terminals, or the power supply unit for the equipment power supply must comply with NEC Class 2, as described by the National Electrical Code (r) (ANSI / NFPA 70).

7.2.3 Technical specifications

Table 7-5 Technical specifications of the transponder RTLS4060T

		6GT2700-6DE03
Product name	SIMATIC RTLS4060T	
PULSE radio frequencies (localization)		
Wireless method	IEEE 802.15.4-2011 UWB	
Transmission speed	6.8 Mbps	
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz	
Transmit power	0.037 mW (-41.3 dBm/MHz)	
Range	Max. 30 m	
Accuracy of the localization	0.2 m	
Antennas	Built-in UWB antenna	
PHASE radio frequencies (communication and optional localization)		
Wireless method	IEEE 802.15.4	
Transmission speed	1 Mbps	
Operating frequency rated value	2400 ... 2480 MHz	
Transmit power	0.00025 ... 100 mW	
Range	Max. 500 m	
Accuracy of the localization	1 m	

6GT2700-6DE03

Antennas	Built-in 2.4 GHz antenna
Bandwidth	2 MHz; data transmission on 802.15.4 channels (adjustable)

Digital inputs

Input voltage	0 to 24 V DC
Input impedance	4.7 kOhm

Digital outputs

Output	High-side switch → Connect to input voltage
Output current	Max. 250 mA, short-circuit proof
Output voltage	0 V or supply voltage
Load	Any; inductive loads up to 32 H do not require a freewheeling diode. If a freewheeling diode is used, a polarity protection diode must also be used.

Supply voltage, power consumption

Supply voltage	10 ... 30 V DC
Rated voltage	24 V DC
Power consumption	3.5 W

Permitted ambient conditions

Ambient temperature	-15 ... +50 °C
---------------------	----------------

Design, dimensions, weights and connectors

Dimensions (L x W x H)	151 x 66 x 43 mm
Weight	180 g
Degree of protection	IP65
Method of securing	4 mounting holes for M5 screws
Enclosure	Plastic housing (PC)
Color	Light grey (RAL 7035)
Plug-in connector	8-pin plug-in connector – cable socket PX0410/08S/6065

7.2.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement

- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4060T (MLFB 6GT2700-6DE03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and

can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.2.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-15 °C < Tamb. < +50 °C

IP65

U_n= 24 V DC, XX mA

The equipment also carries the following notes:

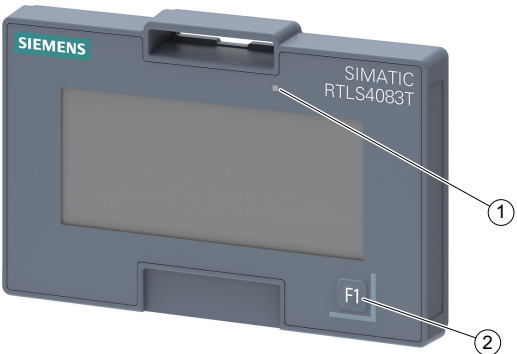
XXXYYYZZZ

[= serial number, is assigned during production]

7.3 SIMATIC RTLS4083T

7.3.1 Device description

7.3.1.1 Characteristics

SIMATIC RTLS4083T	Characteristics	
	Design	① Status indicators (LED) ② F1 function key
	General	The transponder is the mobile device for localization in the RTLS localization system. It sends position data to anchors and gateways which transmit the data to the localization server. Information can be transmitted and shown on the display from the wireless system.
	Area of application	The device is designed for an operating temperature of 0 ... +50 °C. If you only need localization without change of the display information, the lower temperature limit can be lowered to -10 °C. The device is protected from water spray on all sides (IP54).
	Supply voltage	The device is supplied with voltage by a permanently installed single cell lithium polymer rechargeable battery (3.6 V).

7.3.1.2 Order data RTLS4083T

Table 7-6 Order data RTLS4083T

	Article number
SIMATIC RTLS4083T	6GT2700-5DC03

Table 7-7 Accessories order data (not included in scope of delivery)

	Article number
Charging station for 10 transponders with power plug for region: D / F / NL / ESP / B / A / S / FIN	6GT2790-0DD00
Charging station for 10 transponders with power plug for region: USA	6GT2790-0DD01

7.3.1.3 LED status indicator, display & function key

Display	Meaning
LED (red/green)	No fixed assignment of function. Configurable with optional software
Display	10 background images can be saved 10 text boxes with 58 characters each 10 font types and font sizes, including bar codes
F1 function key	No fixed assignment of function. Configurable with optional software

7.3.1.4 Dimension drawing

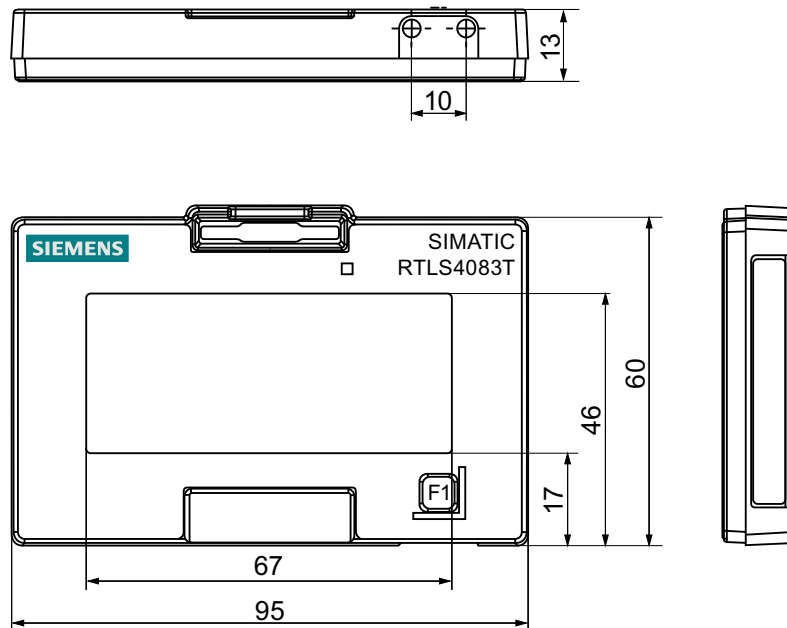


Figure 7-3 Dimension drawing SIMATIC RTLS4083T - All dimensions specified in millimeters

7.3.2 Installation & Operation

7.3.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

Mount the device so that it has a direct line-of-sight connection to the anchors/gateways (360° panorama view). Any type of material can impact localization. Localization through metal is not possible. Localization through radio reflections is possible in this case which results in an inaccurate localization.

Check the device for damages before you use it so that it is not damaged during operation. Protect the display from objects that could scratch or otherwise damage it. The specified operating temperature ranges must be observed.

The device contains a lithium battery.

⚠ CAUTION

Fires and burns

Improper handling of batteries can lead result in fires and burns.

The housing of the device must not be squashed, punctured or exposed to other mechanical influences.

Never expose the device to fire, temperatures above 50 °C or direct sunlight for an extended period of time.

7.3.2.2 Operation

The device is operated with a button on the front panel. The function of the button can be programmed with the software.

7.3.2.3 Cleaning and maintenance

The housing must not be opened.

The device may only be repaired by an authorized maintenance company or opened for other types of work.

Improper opening or repairing of the device may result in risks for the user. Opening the device without permission renders the warranty of the Siemens AG null and void.

Do not clean the enclosure with liquids or abrasive, caustic or flammable cleaning products.

7.3.3 Technical specifications

Table 7-8 Technical specifications of the transponder RTLS4030T

6GT2700-5DC03	
Product name	SIMATIC RTLS4083T
PULSE radio frequencies (localization)	
Wireless method	IEEE 802.15.4-2011 UWB
Transmission speed	6.8 Mbps
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.037 mW (-41.3 dBm/MHz)
Range	Max. 30 m
Accuracy of the localization	0.2 m
Antennas	Built-in UWB antenna
PHASE radio frequencies (communication and optional localization)	
Wireless method	IEEE 802.15.4
Transmission speed	1 Mbps
Operating frequency rated value	2400 ... 2480 MHz
Transmit power	Max. 4 dBm (can be set)

6GT2700-5DC03	
Range	Max. 50 m
Accuracy of the localization	1 m
Antennas	2.4 GHz antenna (integrated)
Bandwidth	2 MHz; data transmission over 802.15.4 channels (adjustable)
Supply voltage, power consumption	
Supply voltage	EPT 3.6 V lithium polymer rechargeable battery (1900 mAh)
Service life (at 20 °C)	Standby: 1 year Operation: 100% UWB localization at 1 second: 6 months Display is updated every 10 seconds without localization: 25 days
Permitted ambient conditions	
Ambient temperature	-20 ... +50 °C
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	Approx. 91 x 58 x 14 mm
Weight	Approx. 85 g
Degree of protection	IP54
Method of securing	Cable ties, fixing clips
Enclosure	Plastic housing
Color	Titanium gray

7.3.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33: Special conditions for ultra-wideband (UWB) devices
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4083T (MLFB 6GT2700-5DC03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.3.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-20 °C < Tamb. < +50 °C

IP54

U_n= XX V DC, XX mA

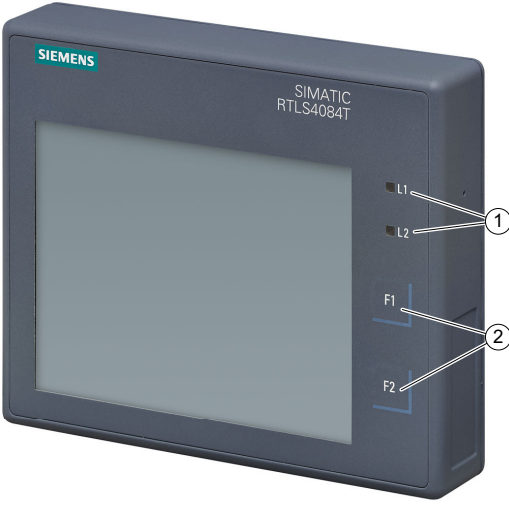
The equipment also carries the following notes:

XXXYYYZZZ [= serial number, is assigned during production]

7.4 SIMATIC RTLS4084T

7.4.1 Device description

7.4.1.1 Characteristics

SIMATIC RTLS4084T	Characteristics	
	Design	① L1 and L2 status indicators (LEDs) ② F1 and F2 function keys
	General	The transponder is the mobile device for localization in the RTLS localization system. It sends position data to anchors and gateways which transmit the data to the localization server. Information can be transmitted and shown on the display from the wireless system.
	Area of application	The device is designed for an operating temperature of 0 ... +50 °C. Localization mode without changing the display is possible in environments down to -20 °C. The device is protected from water spray on all sides (IP64).
	Supply voltage	The device is supplied with voltage by four replaceable battery.

7.4.1.2 Order data RTLS4084T

Table 7-9 Order data RTLS4084T

	Article number
SIMATIC RTLS4084T including 4 x SAFT 3 V lithium batteries (already installed)	6GT2700-7DC03

7.4.1.3 LED status indicator, display & function key

The operating states of the transponder are indicated by the LED. The LED can be green and red and have the states off , on , flashes .

Display	Meaning
LED L1 (red/green)	No fixed functionality. Configurable by means of optional software
LED L2 (red/green)	No fixed functionality. Configurable by means of optional software
Display	10 background images can be saved 20 text boxes with 58 characters per box 20 font types/sizes incl. bar codes
F1 function key	No fixed functionality. Configurable by means of optional software
F2 function key	No fixed functionality. Configurable by means of optional software

7.4.1.4 Dimension drawing

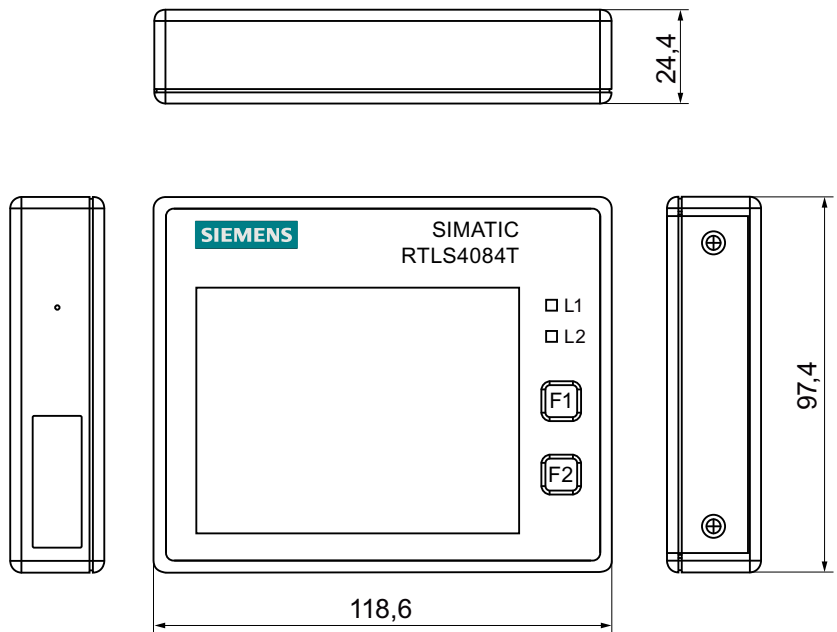


Figure 7-4 Dimension drawing SIMATIC RTLS4084T - All dimensions specified in millimeters

7.4.2 Installation & Operation

7.4.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

For commissioning, you first need to pull a marked insulating film from the housing to enable the power supply and thus the functioning of the device.

Remove the batteries from the device when you are returning it.

Mount the device so that it has a direct line-of-sight connection to the anchors/gateways (360° panorama view). Any type of material can impact localization. Localization through metal is not possible. Localization through radio reflections is possible in this case which results in an inaccurate localization.

Check the device for damages before you use it so that it is not damaged during operation. Protect the display from objects that could scratch or otherwise damage it. The specified operating temperature ranges must be observed.

The device contains a lithium battery.

 CAUTION
Fires and burns
Improper handling of batteries can lead result in fires and burns.

The housing of the device must not be squashed, punctured or exposed to other mechanical influences. It may only be opened to change batteries. Make sure that you observe the polarity of the batteries (marking on the battery insert).

Never expose the device to fire, temperatures above 50 °C or direct sunlight for an extended period of time.

Remove the storage and transport protection to commission the battery. To do this, pull out the plastic film that is visible on the battery compartment. It is not necessary to loosen the screws of the battery cover for this purpose.

Operating the device

The device is operated using the buttons on the front. The functioning of the button can also be defined by means of optional software functionality.

7.4.2.2 Replacing the batteries

Proceed as follows to replace the batteries:

1. Loosen the two screws on the left-hand side with a cross-tip screwdriver.
2. Insert the batteries in the device according to the polarity direction given on the lid.
3. Then close the housing again, making sure that the sealing ring on the screw is positioned correctly. Recommended tightening torque for both screws is 7.2 +/- 0.2 Ncm.

Note

The batteries of the device should only be changed in dry environments.

7.4.2.3 Cleaning and maintenance

The enclosure may only be opened to change batteries.

The device may only be repaired by an authorized maintenance company or opened for other types of work.

Improper opening or repairing of the device may result in risks for the user. Opening the device without permission renders the warranty of the Siemens AG null and void.

Do not clean the enclosure with liquids or abrasive, caustic or flammable cleaning products.

7.4.3 Technical specifications

Table 7-10 Technical specifications of the transponder RTLS4084T

6GT2700-7DC03	
Product name	SIMATIC RTLS4084T
PULSE radio frequencies (localization)	
Wireless method	IEEE 802.15.4-2011 UWB
Transmission speed	6.8 Mbps
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.037 mW (-41.3 dBm/MHz)
Range	Max. 30 m
Accuracy of the localization	0.2 m
Antennas	UWB antenna integrated
PHASE radio frequencies (communication and optional localization)	
Wireless method	IEE 802.15.4

6GT2700-7DC03	
Transmission speed	1 Mbps
Operating frequency rated value	2400 ... 2480 MHz
Transmit power	Max. 4 dBm (can be set)
Range	Max. 50 m
Accuracy of the localization	1 m
Antennas	2.4 GHz antenna integrated
Bandwidth	2 MHz; data transmission on 802.15.4; channels can be set
Supply voltage, power consumption	
Supply voltage	4 SAFT 3 V lithium batteries (LS14500AA)
Operating time at 20 °C	Standby: 8 years Active time: 100% UWB localization at 1 second: 18 months Display updates every 10 seconds without localization: 5 months
Permitted ambient conditions	
Ambient temperature	-20°C to +50°C (0 °C ... +50 °C for display operation)
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	Approx. 119 x 97 x 24 mm
Weight	Approx. 350 g (incl. batteries)
Degree of protection	IP64
Method of securing	Customer-specific Fastening clip, double-sided adhesive tape
Enclosure	Plastic housing
Color	Titanium gray

7.4.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mf=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33: Special conditions for ultra-wideband (UWB) devices

- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4084T (MLFB 6GT2700-7DC03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.4.4.1 UL**UL HAZ. LOC.**

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE**Validity only when the devices are labeled**

Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122

IND.CONT.EQ FOR HAZ.LOC.

CL.I, DIV.2, GP.C,D T4

CL.II, DIV.2, GP.F,G T80 °C

AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X

AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-20 °C < Tamb. < +50 °C

IP64

U_n = XX V DC, XX mA

The equipment also carries the following notes:

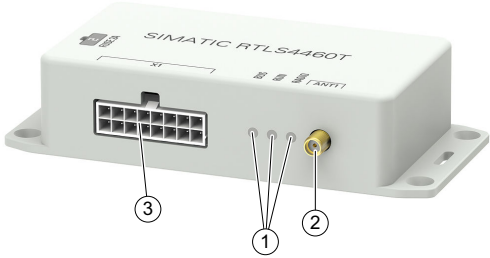
XXXYYYZZZ

[= serial number, is assigned during production]

7.5 SIMATIC RTLS4460T

7.5.1 Device description

7.5.1.1 Characteristics

SIMATIC RTLS4460T	Characteristics	
	Design	<ul style="list-style-type: none"> ① Status indicators (LEDs) ② Antenna connector for RP SMA antenna ③ Connector for supply voltage and digital inputs
	General	<p>The transponder is the mobile device for localization in the RTLS localization system. It sends position data to anchors and gateways which transmit the data to the localization server.</p> <p>The device is suitable for installation in vehicles and other devices.</p>
	Area of application	
	Supply voltage	The device can be operated with 24 V DC.

7.5.1.2 Order data RTLS4460T

Table 7-11 Order data RTLS4460T

	Article number
SIMATIC RTLS4460T	6GT2700-6CE02

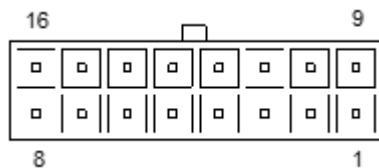
Table 7-12 Accessories order data (not included in scope of delivery)

	Article number
Connector with 16 crimp contacts	6GT2790-0BB00
Antenna with FME-M connector, 2 dBi	6GT2706-0CB00
Antenna with FME-M connector, 0 dBi	6GT2706-0CA00
ANT795-6MN WLAN antenna	6GK5795-6MN10-0AA6
Mounting set for ANT795-6MN including mounting aid, angle adapter, N-Connect Fixing screws, Compact instructions	6GK5795-6MN01-0AA6
Antenna cable, 2 m	6GT2791-6AH20

	Article number
Antenna cable, 3 m	6GT2791-6AH30
Flexible connecting cable (e.g. for connecting an antenna to an access point)	
1 m	6XV1875-5CH10
2 m	6XV1875-5CH20
5 m	6XV1875-5CH50

7.5.1.3 Pin assignment

P1 - Plug-in connector for power, digital output



16-pin plug-in connector WR-MPC4

0.33 mm² open 1.31 mm²

Pin	Description
1	not applicable
2	Digital input 7
3	Digital input 5
4	Digital input 3
5	Digital input 1
6	CAN high
7	Digital output 1
8	24 V DC (e.g. terminal 30)

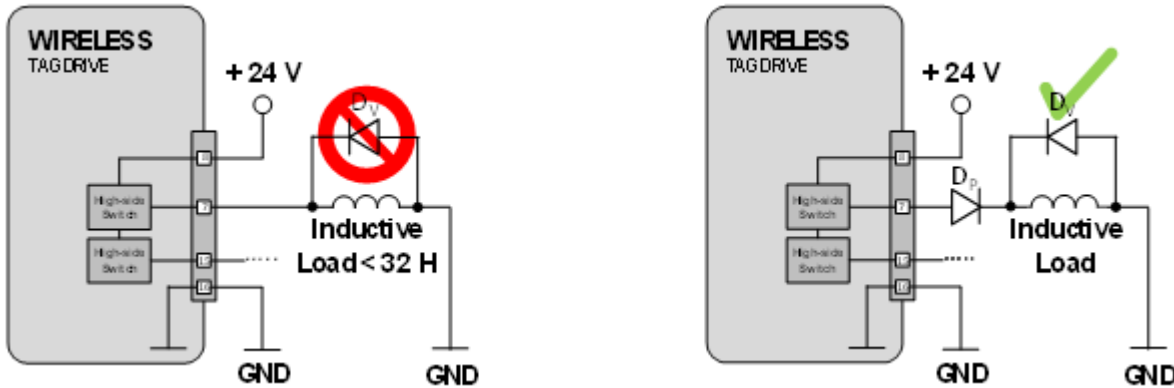
Connector	Description
9	not applicable
10	Digital input 8
11	Digital input 6
12	Digital input 4
13	Digital input 2
14	CAN low
15	Digital output 2
16	GND (e.g. terminal 31)

Digital output

Both digital device outputs can switch resistive, capacitive and inductive loads. The current is automatically limited to these functions.

The following must be observed for inductive loads (e.g. relays): Inductivities up to 32 H can be switched off without freewheeling diode D_V . A freewheeling diode D_V is required for higher inductivities.

If a freewheeling diode D_V is used, an additional polarity protection diode D_P must be inserted.



Digital input

The device has 8 digital inputs, 1 to 8. Each has a range from 0 to 24 V with an impedance of 4.7 kOhm.




Input 8 is different in that the impedance can be switched off. The input impedance is 110 kOhm in this case.



P3 - Antenna - RP-SMA plug-in connector





Connector	Description
1	Antenna
Shield	GND, shield



7.5.1.4 LED status indicator

Possible LED states

The operating states of the transponder are indicated by the LEDs. The states can be off , on  and flashing .

RADIO LED (D1)	Meaning
	Is off when the device is inactive
	Flashes once every 0.5 seconds when a test is conducted during device start. Test when starting the device to test proper operation of the LEDs and the device. You have to monitor all three LEDs of the device when you switch on the supply voltage. All three LEDs are flashing simultaneously for about 0.5 seconds to indicate that the device and LEDs are in operation.

RUN LED (D2)	Meaning
	Is off when the device is inactive
	Flashes once every 0.5 seconds when a test is conducted during device start. Test when starting the device to test proper operation of the LEDs and the device. You have to monitor all three LEDs of the device when you switch on the supply voltage. All three LEDs are flashing simultaneously for about 0.5 seconds to indicate that the device and LEDs are in operation.
	Flashes every three seconds when the device is in SLOW state.
	Flashes permanently when the device is in FAST state.

BUS LED (D3)	Meaning
	Is off when the device is inactive
	Flashes once every 0.5 seconds when a test is conducted during device start. Test when starting the device to test proper operation of the LEDs and the device. You have to monitor all three LEDs of the device when you switch on the supply voltage. All three LEDs are flashing simultaneously for about 0.5 seconds to indicate that the device and LEDs are in operation.

7.5.1.5 Dimension drawing

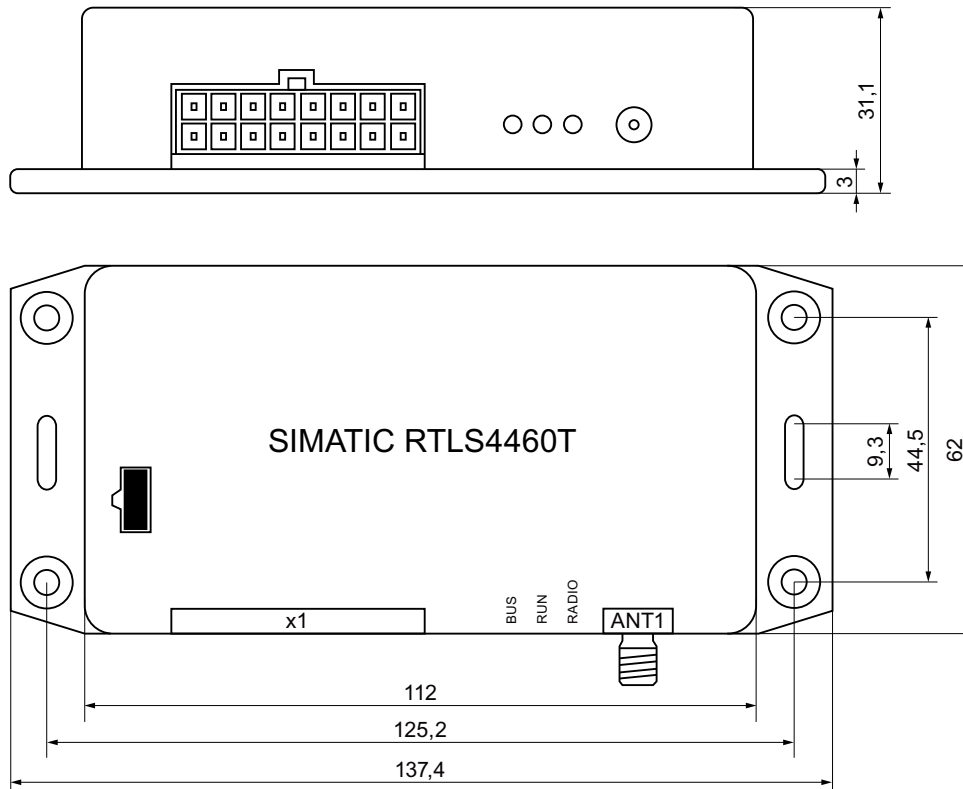


Figure 7-5 Dimension drawing SIMATIC RTLS4460T - All dimensions specified in millimeters

7.5.2 Installation & Operation

7.5.2.1 Notes on installation

Before you install the devices, read this section carefully to ensure trouble-free installation and operation.

The devices can only be used in conjunction with the RTLS localization system. Setup, installation and use of the tools and clients of the RTLS localization system are described in the corresponding manuals.

The device is intended for installation in a vehicle. Installation is to be performed by qualified and trained personnel according to the operating instructions. In addition, installation must take place in accordance with the respective instructions for the installation of electrical systems and utilities.

Note the specifications in the section "Technical specifications" during installation and operation. Protect the device against moisture.

Make sure that the ambient temperature does not exceed 70 °C and that the device is not installed at a location where it is exposed to direct sunlight.

Connection of the cables

Make sure that the wiring is correct before you start up the device.

Connection of the antenna

Connect the antenna to the RP SMA connection (P2). The device must not be operated without an antenna. The device must be turned off or disconnected from the power to change or remove the antenna.

The antennas of all wireless devices must be equally aligned.

Supply voltage

When the supply voltage is connected at the "Power" input, all LEDs light briefly for a moment. The POWER LED lights up permanently in green as soon as voltage is present.

Check whether the rated voltage of the power supply corresponds to the values in the section "Technical specifications".

7.5.3 Technical specifications

Table 7-13 Technical specifications of the transponder RTLS4460T

6GT2700-6CE02	
Product name	SIMATIC RTLS4460T
Wireless frequencies	
Wireless method	IEEE 802.15.4a nanoLOC - Chirp Spread Spectrum (CSS)
Transmission speed	1 Mbps
Operating frequency rated value	2400 ... 2480 MHz
Transmit power	Max. 100 mW, can be set
Range	Max. 1000 m
Accuracy of the localization	1.5 m
Chirp bandwidth	80 MHz
Range with 1 Mb	Inside maximum 90 m Outside maximum 1000 m (typical 500 m)
Supply voltage, power consumption	
Supply voltage	24 V DC
Energy intake	Max. 1.6 W / 0.06 A
Digital inputs and outputs	
Input voltage	0 to 24 V DC

6GT2700-6CE02	
Input impedance	4.7 kOhm Input 8, 4.7 kOhm or 110 kOhm can be selected
Digital output	High-side switch → Connect to input voltage
Output current	Max. 250 mA, short-circuit proof
Output voltage	0 V or supply voltage
Load	Any; inductive loads up to 32 H do not require a freewheeling diode. If a freewheeling diode is used, a polarity protection diode must also be used.
Permitted ambient conditions	
Ambient temperature	-40 ... +70 °C
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	138 x 62 x 31 mm
Weight	125 g
Degree of protection	IP20
Enclosure	Plastic housing
Color	Gray
Method of securing	4 mounting holes for M4 countersunk head screws
Power plug (P1)	16-pin plug-in connector WR-MPC4, 0.33 mm ² open 1.31 mm ²
Antenna connector	RP-SMA power plug
Fuses	Mini blade-type fuse, 2 A

7.5.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mf=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
Specific conditions for broadband data transmission systems
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS4460T (MLFB 6GT2700-6CE02); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) L'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.5.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-40 °C < Tamb. < +70 °C

IP20

U_n = 24 V DC, 60 mA

The equipment also carries the following notes:

XXXXXXXXXX [= serial number, is assigned during production]

7.6 SIMATIC RTLS PCB OEM AC

7.6.1 Device description

7.6.1.1 Order data RTLS PCB OEM AC

Table 7-14 Order data RTLS PCB OEM AC

	Article number
SIMATIC RTLS PCB OEM AC	6GT2700-8DF00-0AX1

7.6.1.2 Pin assignment

P2 socket




Type: JST SM02B-SRSS-TB



Pin	Description / Function
1	3.3 V supply voltage
2	GND

P1 connector

Internal interface for production and manufacturing test, do not use.

7.6.1.3 LED status indicator

The operating states of the transponder are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	Flashes when the transponder is active
	Is off when the transponder is inactive

7.6.1.4 Dimension drawing

The UWB antenna is arranged diagonally standing up on the top side of the PCB.

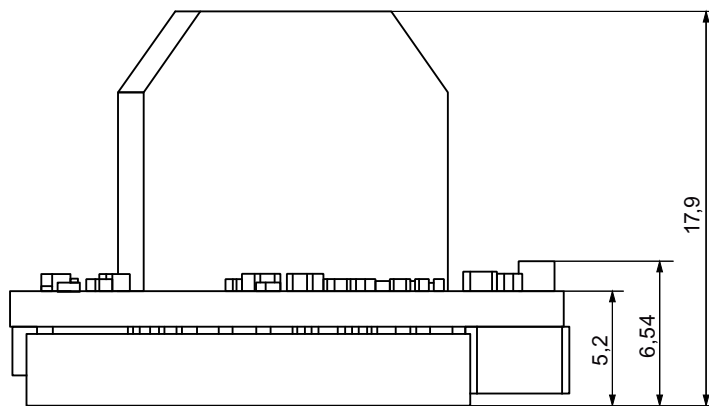
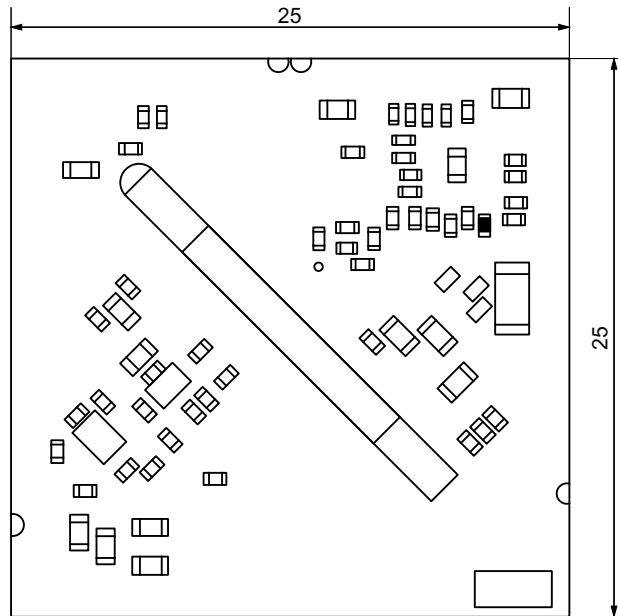


Figure 7-6 Dimension drawing SIMATIC RTLS PCB OEM AC - All dimensions specified in millimeters

7.6.2 Installation & Operation

7.6.2.1 Cleaning and maintenance

The device may only be opened by suitably trained and qualified personnel. Only authorized dealers are permitted to repair the device.

Unauthorized opening of and improper repairs to the device may cause substantial risks to the user. As soon as the device was opened without permission, warranty and liability of the Siemens AG are rendered null and void.

Do not clean the enclosure with abrasive, alkaline or aggressive cleaning products or aids.

7.6.3 Technical specifications

Table 7-15 Technical specifications of the transponder RTLS PCB OEM AC

6GT2700-8DF00-0AX1	
Product name	SIMATIC RTLS PCB OEM AC
PULSE radio frequencies (localization)	
Wireless method	IEEE 802.15.4-2011 UWB
Transmission speed	6.8 Mbps
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.037 mW (-41.3 dBm/MHz)
Range	Max. 30 m
Accuracy of the localization	0.2 m
Antennas	UWB antenna integrated
PHASE radio frequencies (data transfer and optional localization)	
Wireless method	IEEE 802.15.4
Transmission speed	1 Mbps
Operating frequency rated value	2.40 ... 2.48 GHz ISM band
Transmit power	Max. 4 dBm (can be set)
Range	Max. 50 m
Accuracy of the localization	1 m
Antennas	2.4 GHz antenna integrated
Bandwidth	2 MHz; data transmission on 802.15.4; channels can be set
Supply voltage, power consumption	
Supply voltage	3.3 V DC (± 100 mV)
Energy intake	Max. 0.5 A
Permitted ambient conditions	
Ambient temperature	0 to +50 °C
Design, dimensions, weights and connectors	

6GT2700-8DF00-0AX1	
PCB dimensions (L x W x H)	25 x 25 x 18 mm
Antenna dimensions (L x W x H)	20.6 x 12.7 x 1.6 mm
Weight	Approx. 6 g
Degree of protection	IP00

7.6.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33:
Special conditions for ultra-wideband (UWB) devices
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information**Siemens SIMATIC RTLS PCB OEM AC (MLFB 6GT2700-8DF00-0AX1); FCC ID NXW-RF380R02**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.6.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

0 °C < Tamb. < +50 °C
 IP00
 U_n = 3.3 V DC, 50 mA

The equipment also carries the following notes:

XXXXXXXXXX [= serial number, is assigned during production]

7.7 SIMATIC RTLS PCB OEM AX

7.7.1 Device description

7.7.1.1 Order data RTLS PCB OEM AX

Table 7-16 Order data RTLS PCB OEM AX

	Article number
SIMATIC RTLS PCB OEM AX	6GT2700-8DF00-0AX0

7.7.1.2 Pin assignment

P200 socket

For connecting the HWL scanner

Type: DF40HC(2.5)-20DS-0.4V(51)

Pin	Description / Function
1	Not used
2	Grounding
3	Not used
4	Not used
5	Not used
6	Not used
7	Not used
8	Grounding
9	Not used
10	RTS
11	3.4 V scanner operating voltage
12	CTS
13	3.4 V scanner operating voltage
14	TXD
15	3.4 V scanner operating voltage
16	RXD
18	Grounding

Pin	Description / Function
19	Grounding
20	Grounding

P800 socket

Internal interface for production and manufacturing test, do not use.




P201 socket



TMA connector

Type: JST BM08B-SRSS-G-TBT

Pin	Description / Function
1	Not used
2	RTS
3	CTS
4	TXD
5	RXD
6	Power In +5 V
7	Not used
8	Grounding

7.7.1.3 LED status indicator

The operating states of the gateways are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	Flashes green when the device is active
	Is off when the device is inactive

7.7.1.4 Dimension drawing

The two antennas are arranged standing up on the top side of the PCB.

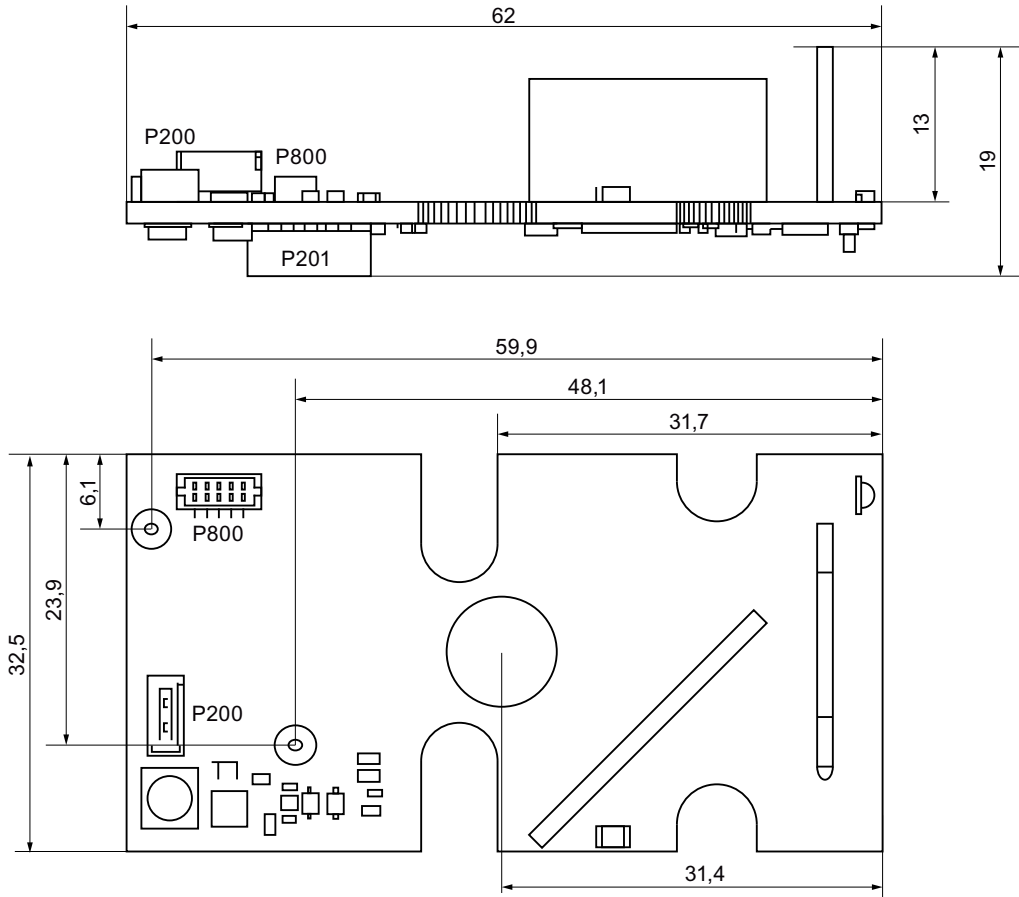


Figure 7-7 Dimension drawing SIMATIC RTLS PCB OEM AX - All dimensions specified in millimeters

7.7.2 Installation & Operation

7.7.3 Technical specifications

Table 7-17 Technical specifications of the transponder RTLS PCB OEM AX

6GT2700-8DF00-0AX0	
Product name	SIMATIC RTLS PCB OEM AX
PULSE radio frequencies (localization)	
Wireless method	IEEE 802.15.4-2011 UWB
Transmission speed	6.8 Mbps

6GT2700-8DF00-0AX0	
Operating frequency rated value	3100 MHz ... 4800 MHz 6000 MHz ... 7000 MHz
Transmit power	0.037 mW (-41.3 dBm/MHz)
Range	Max. 30 m
Accuracy of the localization	0.2 m
Antennas	UWB antenna integrated
PHASE radio frequencies (data transfer and optional localization)	
Wireless method	IEEE 802.15.4
Transmission speed	1 Mbps
Operating frequency rated value	2.40 ... 2.48 GHz ISM band
Transmit power	Max. 4 dBm (can be set)
Range	Max. 50 m
Accuracy of the localization	1 m
Antennas	2.4 GHz antenna integrated
Bandwidth	2 MHz; data transmission on 802.15.4; channels can be set
Supply voltage, power consumption	
Supply voltage	5 V DC (± 100 mV)
Energy intake	Max. 1 A (including scanner)
Permitted ambient conditions	
Ambient temperature	0 to +50 °C
Design, dimensions, weights and connectors	
Dimensions (L x W x H)	32.5 x 62 x 18.6 mm
Weight	Approx. 9 g
Degree of protection	IP00

7.7.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mf=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33:
Special conditions for ultra-wideband (UWB) devices

- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS PCB OEM AX (MLFB 6GT2700-8DF00-0AX0); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.7.4.1 UL**UL HAZ. LOC.**

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

0 °C < Tamb. < +50 °C
 IP00
 U_n= 5 V DC, 1000 mA

The equipment also carries the following notes:

XXXYYYZZZ [= serial number, is assigned during production]

7.8 SIMATIC RTLS PCB OEM CHIRP

7.8.1 Device description

7.8.1.1 Order data RTLS PCB OEM CHIRP

Table 7-18 Order data RTLS PCB OEM CHIRP

	Article number
SIMATIC RTLS PCB OEM CHIRP	6GT2700-8CF02

7.8.1.2 Pin assignment

Solder contact P4

Pin	Description / Function
1	Grounding
2	Rx - Input on the transponder, 2.5 V (3.3 V tolerant)

Pin	Description / Function
3	Tx - Output on transponder, 2.5 V
4	Supply voltage, 3.3 V \pm 100 mV

P1 connector

The individual pins are connected to the solder contacts (P4).




Type: JST SM04B-SRSS-TB



Pin	Description / Function
1	Rx - Input on the transponder, 2.5 V (3.3 V)
2	Tx - Output on transponder, 2.5 V
3	Grounding
4	Supply voltage, VCC, 3.3 V \pm 100 mV

P2 connector

Internal interface for production and manufacturing test, do not use.

7.8.1.3 LED status indicator

The operating states of the gateways are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	Lights up briefly when radio is active
	Is off when the transponder is inactive

7.8.1.4 Dimension drawing

The antenna is connected to the PCB via a 5 cm long U.FL cable. The contacts used are P3 on the PCB and P1 on the antenna.

PCB

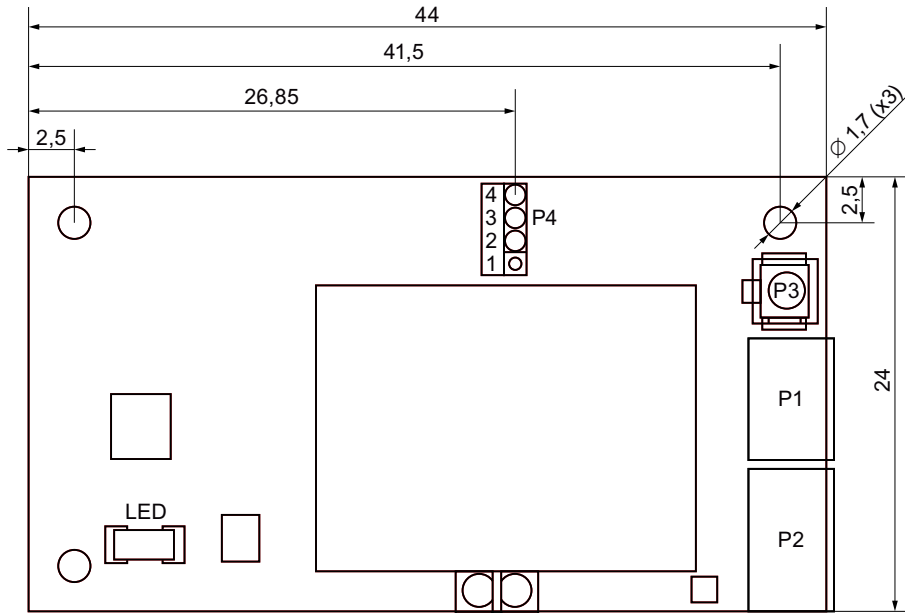


Figure 7-8 All dimensions specified in millimeters.

Antenna

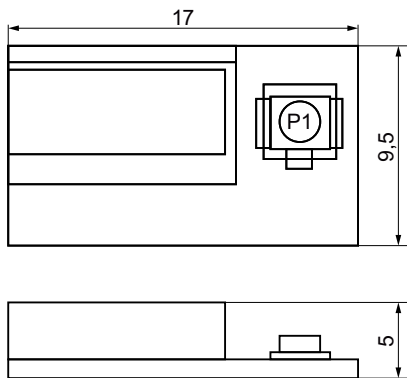


Figure 7-9 All dimensions specified in millimeters.

7.8.2 Installation & Operation

7.8.3 Technical specifications

Table 7-19 Technical specifications of the transponder RTLS PCB OEM CHIRP

6GT2700-8CF02	
Product name	SIMATIC RTLS PCB OEM CHIRP
CHIRP radio frequencies (localization)	
Wireless method	IEEE 802.15.4a nanoLOC Modulation procedure: Chirp Spread Spectrum (CSS)
Transmission speed	850 Kbps
Operating frequency rated value	2.45 GHz ISM band
Transmit power	Max. 100 mW, can be set
Antennas	Connected via antenna cable
Bandwidth	80 MHz
Range	Inside maximum 90 m (typical 60 m) Outside maximum 1000 m (typical 500 m)
Supply voltage, power consumption	
Supply voltage	3.3 V DC (± 100 mV)
Energy intake	Max. 0.2 A
Permitted ambient conditions	
Ambient temperature	-25 to +70 °C
Design, dimensions, weights and connectors	
PCB dimensions (L x W x H)	44 x 24 x 7.5 mm
Antenna dimensions (L x W x H)	17 x 9.5 x 5 mm
Weight	Approx. 10 g
Method of securing	PCB: 3 screws, \varnothing 1.7 mm Antenna: provided by customer

7.8.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for broadband data transmission systems
- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33: Special conditions for ultra-wideband (UWB) devices

- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS PCB OEM CHIRP (MLFB 6GT2700-8CF02); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.8.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
 IND.CONT.EQ FOR HAZ.LOC.
 CL.I, DIV.2, GP.C,D T4
 CL.II, DIV.2, GP.F,G T80 °C
 AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
 AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

-25 °C < Tamb. < +70 °C

IPXX

U_n = 3.3 V DC, 200 mA

The equipment also carries the following notes:

XXXYYYZZZ

[= serial number, is assigned during production]

7.9 SIMATIC RTLS PCB OEM PULSE

7.9.1 Device description

7.9.1.1 Order data RTLS PCB OEM PULSE

Table 7-20 Order data RTLS PCB OEM PULSE

	Article number
SIMATIC RTLS PCB OEM PULSE	6GT2700-8AF03

7.9.1.2 Pin assignment

Solder contact P4

Pin	Description / Function
1	Grounding
2	Rx - Input on the transponder, 3.3 V

Pin	Description / Function
3	Tx - Output on the transponder, 3.3 V
4	Supply voltage 3.3 V

P1 connector

The individual pins are connected to the solder contacts (P4).




Type: JST SM04B-SRSS-TB



Pin	Description / Function
1	Rx - Input on the transponder, 3.3 V
2	Tx - Output on the transponder, 3.3 V
3	Grounding
4	Supply voltage, VCC, 3.3 V ±100 mV

P2 connector

Internal interface for production and manufacturing test, do not use.

7.9.1.3 LED status indicator

The operating states of the transponder are indicated by the LEDs. The states can be off , on  and flashing .

LED	Meaning
	Lights up briefly when radio is active
	Is off when the transponder is inactive

7.9.1.4 Dimension drawing

The antenna is connected to the PCB via a 5 cm long U.FL cable. The contacts used are P3 on the PCB and P1 on the antenna.

PCB

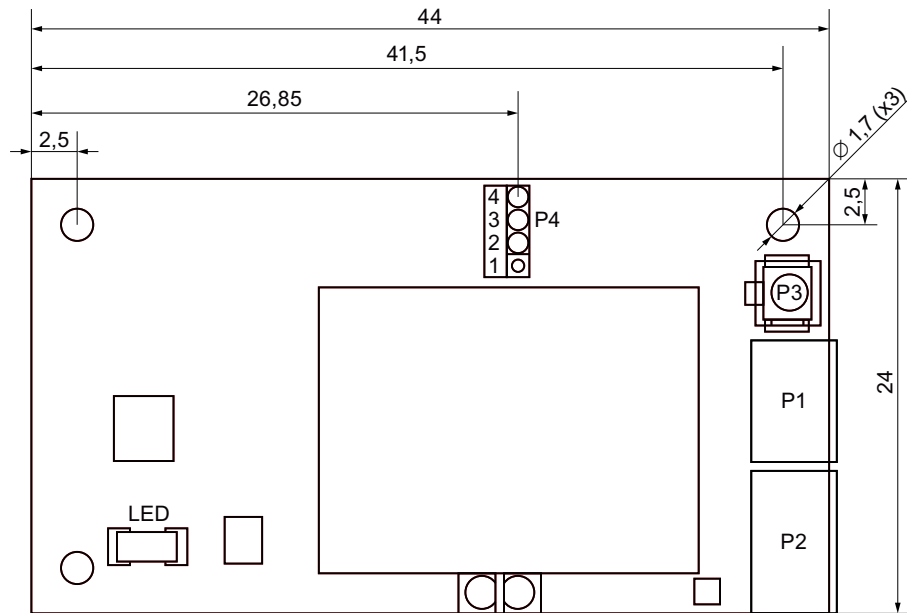


Figure 7-10 All dimensions specified in millimeters.

Antenna

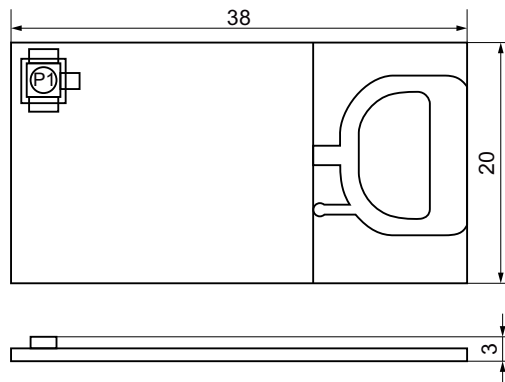


Figure 7-11 All dimensions specified in millimeters.

7.9.2 Installation & Operation

7.9.3 Technical specifications

Table 7-21 Technical specifications of the transponder RTLS PCB OEM PULSE

6GT2700-8AF03	
Product name	SIMATIC RTLS PCB OEM PULSE
PULSE radio frequencies (localization)	
Wireless method	IEEE 802.15.4-2011 UWB
Transmission speed	850 Kbps
Operating frequency rated value	The following frequency bands are supported: <ul style="list-style-type: none"> • 4000 MHz • 6500 MHz
Transmit power	0.037 mW
Antenna	Connected via antenna cable
Bandwidth	500 MHz
Range	Inside maximum 90 m (typical 60 m) Outside maximum 1000 m (typical 500 m)
Supply voltage, power consumption	
Supply voltage	3.3 V DC (± 100 mV)
Energy intake	Max. 0.3 A
Permitted ambient conditions	
Ambient temperature	0 to +50 °C
Design, dimensions, weights and connectors	
PCB dimensions (L x W x H)	44 x 24 x 7.5 mm
Antenna dimensions (L x W x H)	38 x 20 x 3 mm
Weight	Approx. 10 g
Method of securing	PCB: 3 screws, \varnothing 1.7 mm Antenna: provided by customer

7.9.4 Approvals

You can find the current EU Declaration of Conformity for these products on the Internet at Siemens Industry Online Support.

Link: (<https://support.industry.siemens.com/cs/products?dtp=Certificate&mfn=ps&pnid=14970&lc=en-US>)

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, official journal of the EU L174, 1 July 2011, pages 88-110
- Radio Equipment Directive 2014/53/EU (RED)
Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the member states relating to placing radio equipment on the market; official journal of the EU L153, 22 May 2014, pages 62-106

RoHS directive (restriction of the use of certain hazardous substances)

The products described in these operating instructions meet the requirements of the EU directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Applied standard:

- EN 50581
Technical documentation for the assessment of electrical and electronic products with respect to restriction of hazardous substances

The products described in this document meet the requirements of the applied standards:

Article 3 (1) a) Protection of health and safety

- EN 62368-1
Equipment for audio/video, information and communication technology – Part 1: Safety requirements
- EN 62311
Assessment of electronic and electrical equipment related to human exposure restrictions in electromagnetic fields (0 Hz - 300 GHz)

The products described in these operating instructions meet the requirements of EU directive 2014/30/EU "Electromagnetic Compatibility" according to the designated standards for the following areas of application.

Article 3 (1) b) EMC

- ETSI EN 301 489-1
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1: Common technical requirements
- ETSI EN 301 489-17
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17:
Specific conditions for broadband data transmission systems

- ETSI EN 301 489-33
Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 33: Special conditions for ultra-wideband (UWB) devices
- EN 55011
Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class B
Electromagnetic compatibility of multimedia equipment – Emission requirements
- EN 55035
Electromagnetic compatibility of multimedia equipment - Immunity requirements
- EN 61000-6-1
Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- EN 61000-6-3
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-4
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Article 3 (2) Efficient use of the radio spectrum

- ETSI EN 300 328
Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques. Harmonized standard covering the essential requirements of article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2
Short Range Devices (SRD) using ultra-wideband technology (UWB); Harmonized standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

FCC information

Siemens SIMATIC RTLS PCB OEM PULSE (MLFB 6GT2700-8AF03); FCC ID NXW-RF380R02

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.9.4.1 UL

UL HAZ. LOC.

The SIMATIC Ident products meet the requirements of explosion protection according to UL HAZ. LOC. The products meet the requirements of the following standards:

Document	Title
UL 60079-0	Hazardous areas
CSA C22.2 NO. 60079-0	Part 0: Equipment - General requirements
UL 60079-7	Hazardous areas
CSA C22.2 NO. 60079-7	Part 7: Equipment protection by increased safety "e"
UL 60079-31	Hazardous areas
CSA C22.2 NO. 60079-31	Part 31: Equipment dust ignition protection by enclosure "t"

You will find the current versions of the standards in the currently valid UL HAZ. LOC. certificates.

UL HAZ. LOC. identifier

NOTICE
Validity only when the devices are labeled
Only devices with the UL HAZ. LOC. mark have the corresponding approval.

The labeling of electrical equipment is as follows:



LISTED E223122
IND.CONT.EQ FOR HAZ.LOC.
CL.I, DIV.2, GP.C,D T4
CL.II, DIV.2, GP.F,G T80 °C
AEx ec IIB T4 Gc, Ex ec IIB T4 Gc X
AEx tc IIIC TXX °C Dc, Ex tc IIIC TXX °C Dc X

0 °C < Tamb. < +50 °C

IPXX

U_n= 3.3 V DC, 300 mA

The equipment also carries the following notes:

XXXYYYZZZ

[= serial number, is assigned during production]

Accessories

8

System integration

System diagnostics

10

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S

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